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NORDEGG-RED DEER RIVER
SUB-REGIONAL
INTEGRATED RESOURCE PLAN

APPROVED BY THE ECONOMIC PLANNING COMMITTEE OF CABINET
ON MARCH 4, 1986

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Edmonton

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PREFACE

This planning document was prepared by involved government agencies and public consultants in recognition of the need for improved management of Alberta's lands and resources. It applies only to public lands within the Nordegg River planning area, and not to any private or federal lands.

The plan presents the Government of Alberta's resource management policy for the public lands and resources within the area. It is intended to be a guide to resource managers, industry and publics having responsibility or interests in the area rather than a regulatory mechanism. Resource potentials and opportunities for development are identified with a view to assisting in the economic progress of Alberta. The plan is sufficiently flexible so that all future proposals for land use and development may be considered. No legitimate proposals will be categorically rejected. The provincial government is committed to serving Albertans; should a proposal not be in keeping with the provisions of the plan, every means will be taken to explore alternative means for accommodating the proposal in a more appropriate location, either in this planning area or on other public lands. The rejection of any proposals will only be done in writing by the associate minister or his designate.

A detailed outline for implementation will be provided for this sub-regional plan in order to identify the necessary implementation actions and roles. This implementation outline will also provide for the continuing review of the plan so that it may accommodate changing needs and situations. Wherever possible, the private sector will be provided the opportunity to be actively involved in the operational delivery of the plan.

Implementation is to be subject to normal budgetary approval process. In establishing overall priorities, opportunities in other planning areas and areas currently outside the planning process will be considered.

While the plan identifies resource potentials and opportunities, the realization of these may require the dedication of major amounts of public funds. The plan will be used on the understanding that any actions required for implementation will be undertaken only as budgetary approvals are given in the normal way. The private sector will be given the first opportunity to provide any development required.

This plan has no legal status and is subject to revisions or review at the discretion of the Minister of Forestry.

HIGHLIGHT SUMMARY

The Nordegg-Red Deer River planning area covers a large area of mountains and foothills in the Eastern Slopes of west-central Alberta. The area is rich in natural resources, including water, wildlife, fisheries, recreation and tourism resources, ecological and historical resources, timber, minerals and forage.

The Nordegg-Red Deer River Sub-regional Plan will become a complementary extension of A Policy for Resource Management of the Eastern Slopes, Revised 1984.

The planning area can be broadly divided in two on the basis of resource management intent:

- The more mountainous, western part has a protection and recreation emphasis, providing opportunities for watershed, wildlife, fisheries and both extensive and intensive recreation. Industrial and commercial development will continue to be largely constrained throughout this area. In addition, the plan proposes controls on motorized back-country access in those areas where such access is causing terrain damage, wildlife harassment and/or conflict with other recreational users.

- The remaining, foothills part has a multiple use emphasis, with elements of both protection and development. Opportunities for timber, oil and gas, mining, grazing, recreation and tourism development are identified. At the same time, this area can provide significant wildlife, fisheries, recreation and other benefits. Management of motorized recreational access is proposed through a program of designated vehicle routes in conflict areas.

The plan encourages coal development over a large area currently under restriction (Category 2) under the 1976 Coal Policy, while prohibiting coal activities in a valuable wildland portion of this restricted area.

Throughout the planning area, the plan provides guidelines to minimize conflicts between different resources and their use.

Public comments have been received on the full spectrum of issues addressed in the plan and are generally positive. The overwhelming concern has been the limitation of back-country motorized access, with strong opinions expressed both for and against plan proposals. The majority of the area proposed for vehicle restrictions are now designated as Forest Land Use Zones under the Forests Act-, implementing this aspect of the plan on a trial basis until November, 1986.

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Red Deer-James: Revised Eastern Slopes Zoning..... Map Pocket
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1. INTRODUCTION

1.1 The Planning Area

The Nordegg-Red Deer River planning area covers 9 900 km^2 (3 820 sq. mi.) in west-central Alberta. Located west of Rocky Mountain House and Sundre, the planning area is in the Eastern Slopes region (Figure 1). The planning area includes a diversity of landscapes, ranging from alpine, subalpine and montane in the west to boreal uplands and boreal foothills in the east (Figure 2).

The boundary of the Nordegg-Red Deer River planning area is contiguous with Banff National Park, Jasper National Park, White Goat Wilderness and Siffleur Wilderness on the west and southwest. The planning area is bound on the northwest by the Coal Branch planning area in Edson Forest and on the northeast by the Brazeau-Pembina and Rocky-North Saskatchewan planning areas. The eastern boundary generally corresponds to the eastern edge of the Eastern Slopes region. The southern boundary is contiguous with the Ghost River planning area (Figure 1). The Siffleur Wilderness and White Goat Wilderness were not included within the sub-regional plan because of their existing legislation.

For mapping purposes, the planning area has been divided into three map sheets: Red Deer-James, Ram-Clearwater and Chungo-Cline-Nordegg (Figure 1).

Red Deer-James is the most southern map sheet of the Nordegg-Red Deer River planning area. With an overall size of approximately 2 480 km^2 (960 sq. mi.), its main waterbodies are the James, Raven, Panther and Red Deer rivers, their tributaries and Burnstick Lake (Figure 3).

Approximately 230 km^2 (89 sq. mi.) of the map sheet is patent land which is used mainly for agricultural purposes (i.e., grazing) but with a number of cottages located in subdivisions, mainly along the Red Deer River. The northeast corner of the map sheet contains 24 km^2 (9 sq. mi.) of land outside of the Eastern Slopes boundary, of which, approximately 19 km^2 (7 sq. mi.) are patent lands.

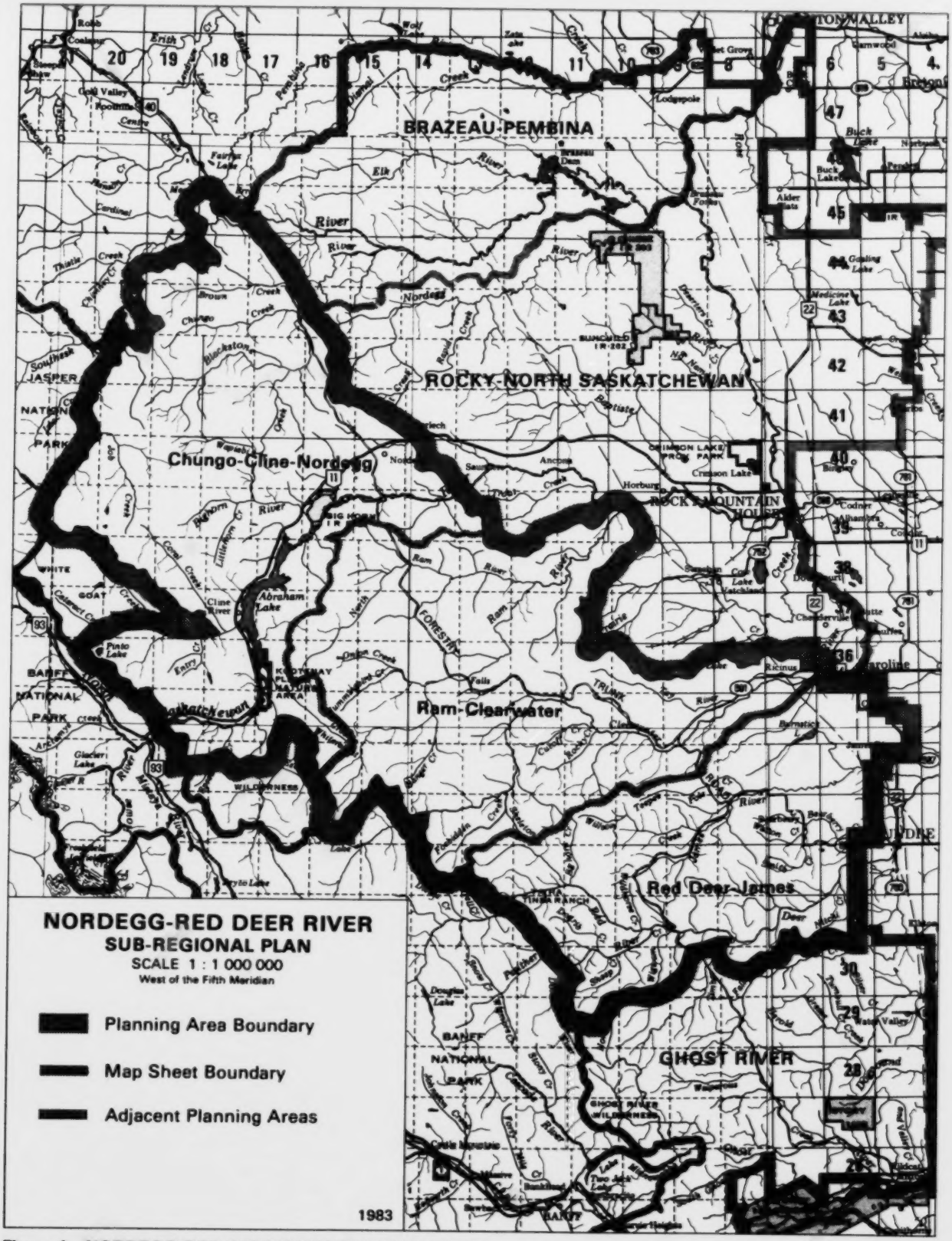


Figure 1. NORDEGG-RED DEER RIVER PLANNING AREA

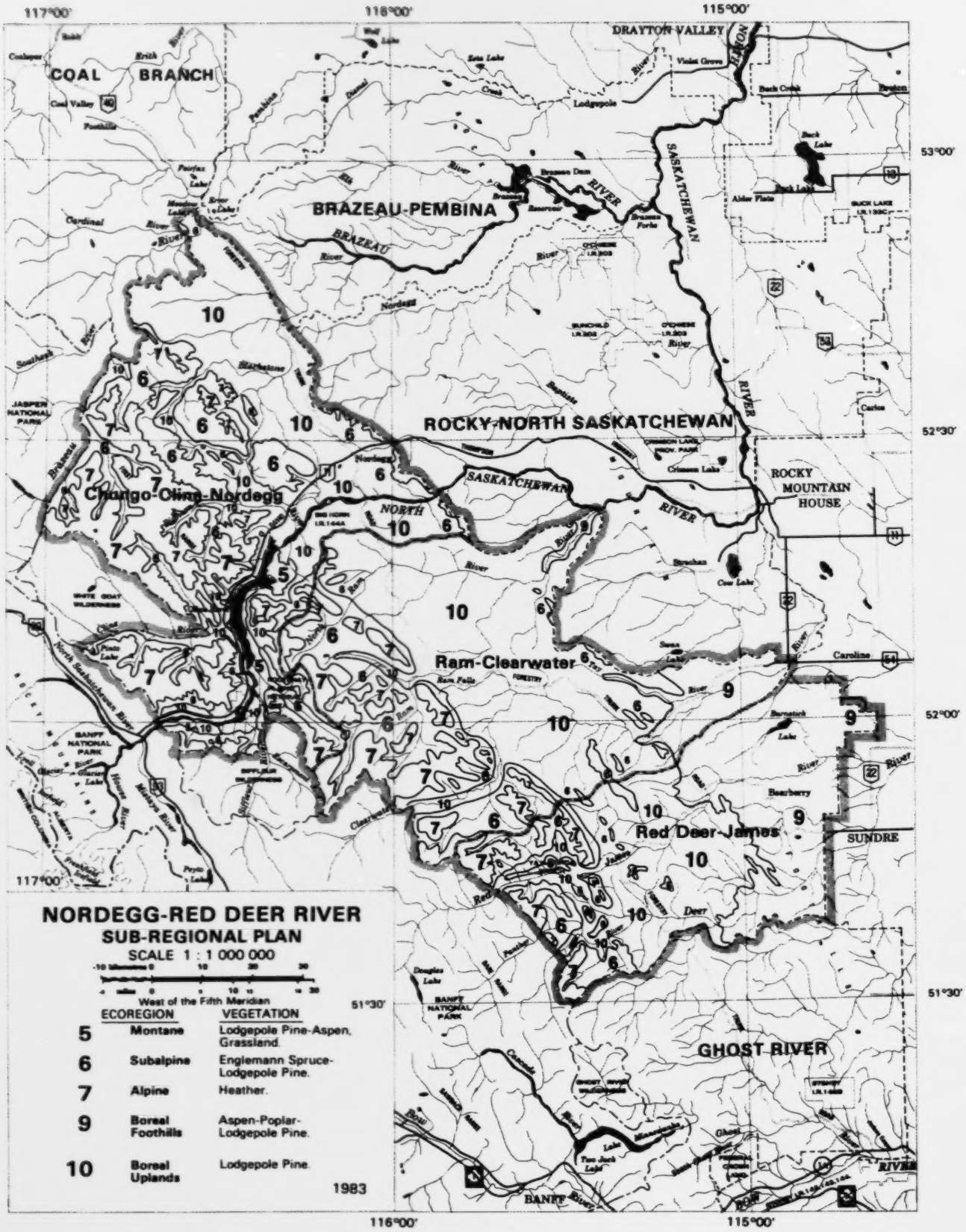


Figure 2. ECOREGIONS OF THE PLANNING AREA.

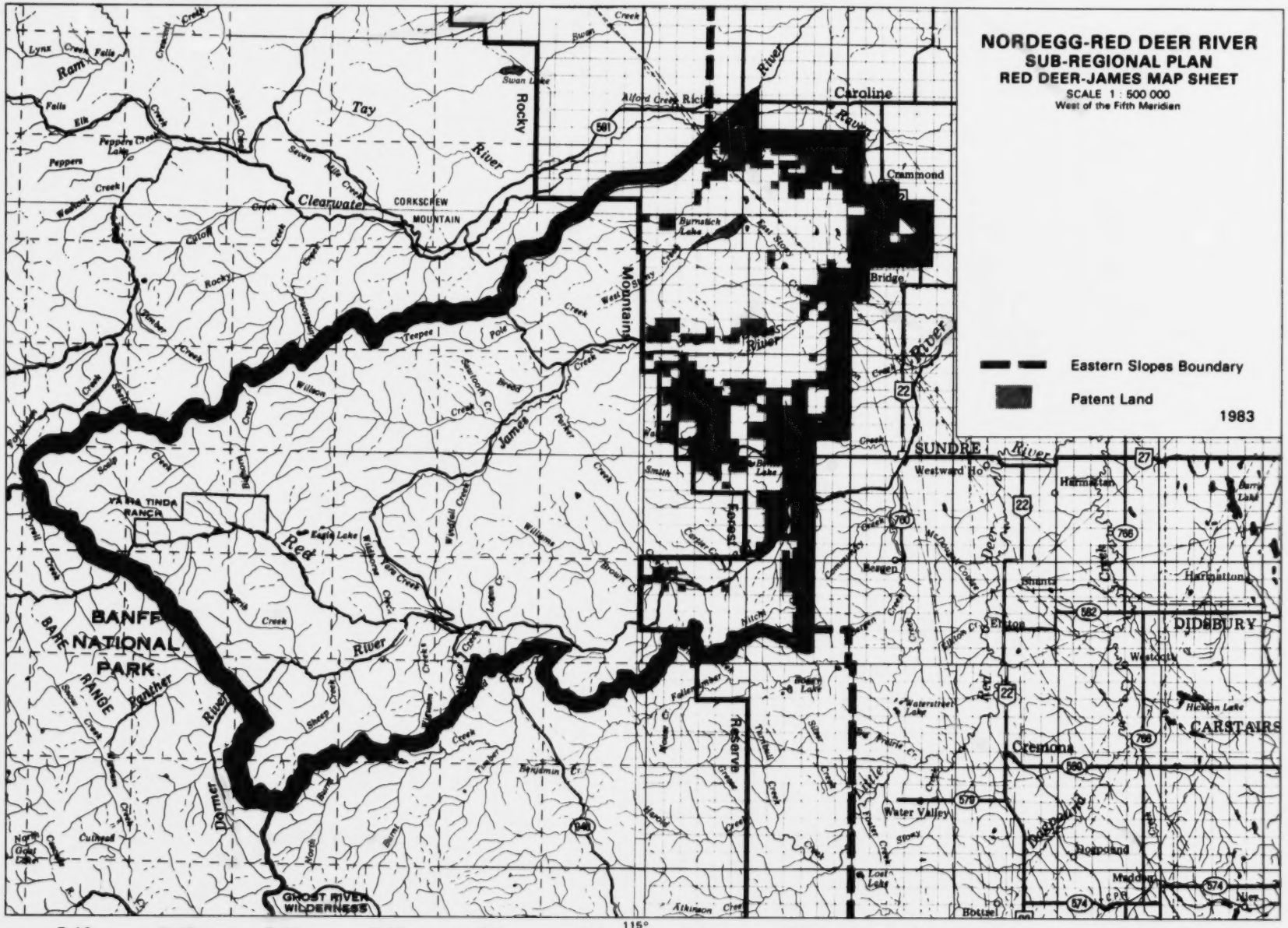


Figure 3. RED DEER-JAMES MAP SHEET

The nearest towns are Sundre and Caroline, via Secondary Roads 584 and 922 respectively. The Forestry Trunk Road is the main north-south transportation route. Tourist facilities exist at Mountain Aire Lodge on the Red Deer River, with a limited number of institutional camps also scattered throughout the map sheet.

Ram-Clearwater, the central map sheet of the Nordegg-Red Deer River planning area, is approximately 3 520 km^2 (1 360 sq. mi.) in size. Its major waterbodies are the Clearwater, Ram, North Ram and Tay rivers and their tributaries (Figure 4).

The patent lands (approximately 30 km^2 or 13 sq. mi.) of this map sheet are used for agricultural and recreational purposes, including a limited number of cottage subdivisions on the Clearwater and Tay rivers. The eastern tip of the map sheet includes a 9 km^2 (3.5 sq. mi.) tract of land outside of the Eastern Slopes boundary, of which approximately 5 km^2 (1.9 sq. mi.) are patent lands.

Caroline is the nearest town, with access along Highway 54 and Secondary Road 591. Secondary Road 752 provides the most direct access to this area from Rocky Mountain House. The Forestry Trunk Road traverses the map sheet from the southeast to northwest. Limited service facilities exist at Ricinus and Boundary Service, adjacent to Secondary Road 591.

The most northern (and western) map sheet of the Nordegg-Red Deer River planning area is Chungo-Cline-Nordegg (Figure 5). Its area of 3 890 km^2 (1 500 sq. mi.2) includes Abraham Lake, Cline and Bighorn rivers, portions of the Siffleur, North Saskatchewan, Blackstone and Brazeau rivers, and their tributaries.

There is no patent land nor areas outside the Eastern Slopes in this map sheet. The hamlet of Nordegg is located at the junction of Highway 11 (David Thompson Highway) and the Forestry Trunk Road, the two major access roads in this area. Highway 11 provides easy access to this area for residents and visitors travelling from Rocky Mountain House and, via Highway 93 (Icefields Parkway), from Jasper, Lake Louise and Banff. Tourist facilities are found at Nordegg, Bighorn Indian Reserve and Cline River; a limited number of institutional camps and facilities also exist in the vicinity of Nordegg.

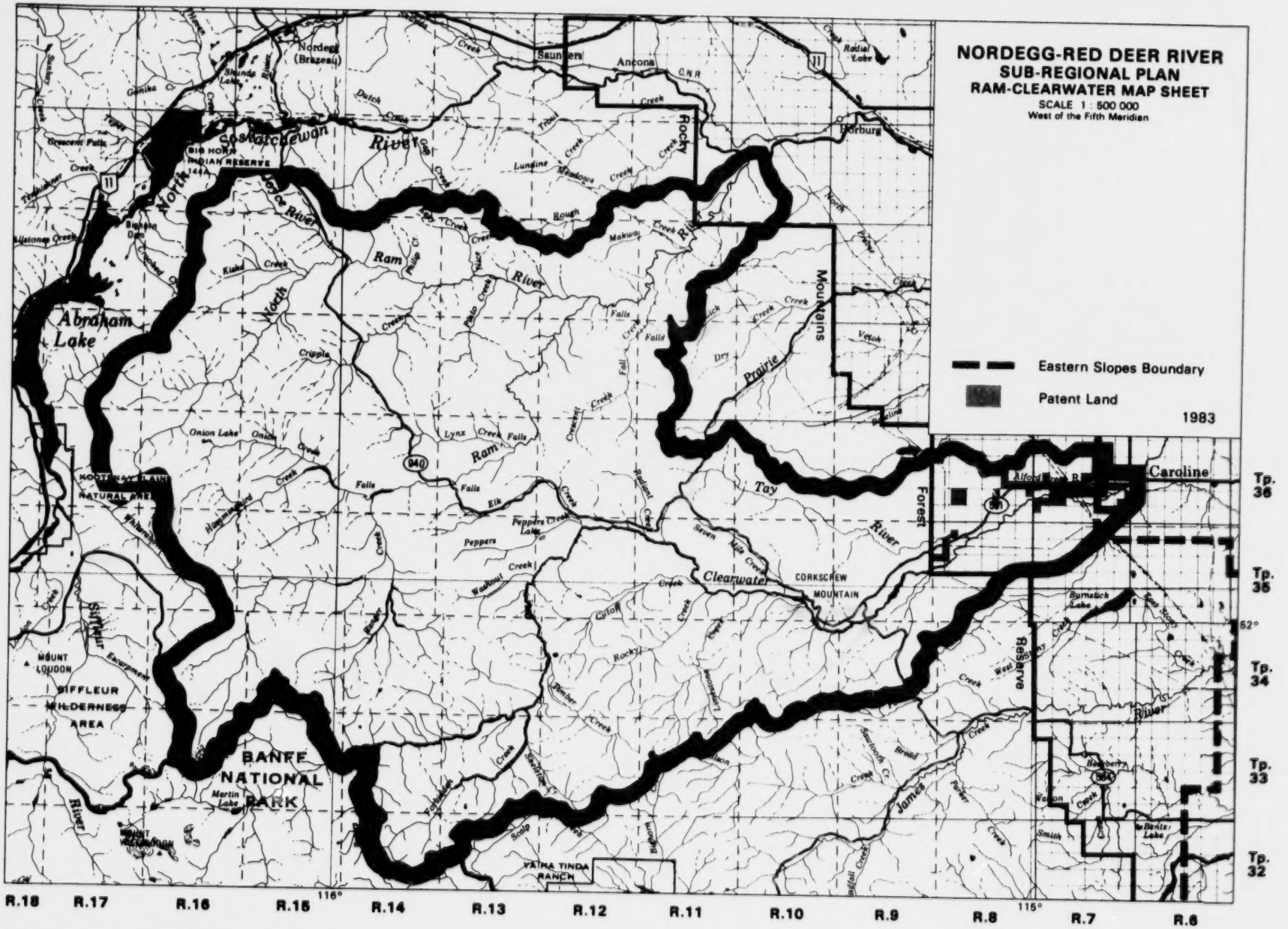


Figure 4. RAM - CLEARWATER MAP SHEET

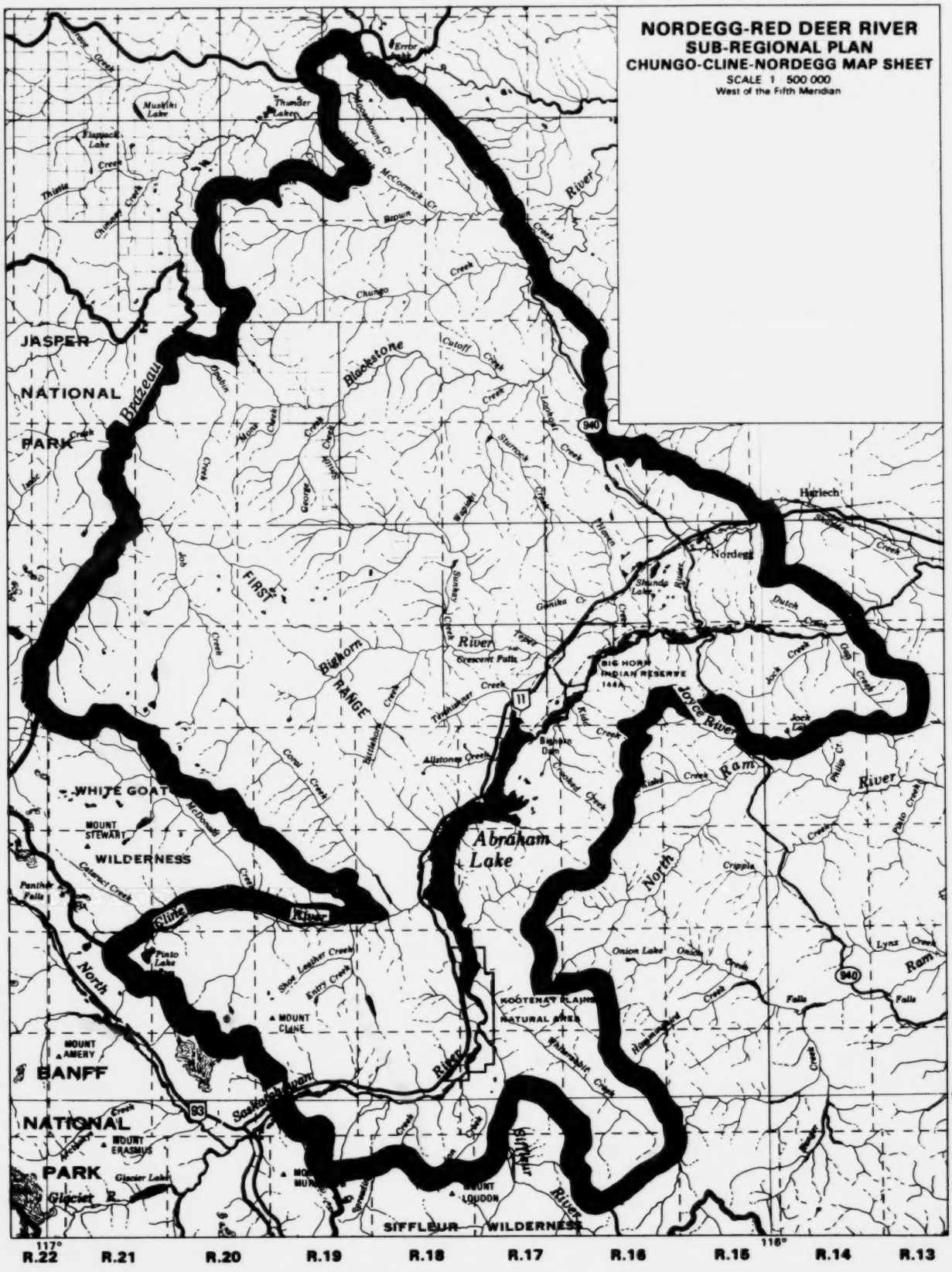


Figure 5. CHUNGO-CLINE-NORDEGG MAP SHEET

1 2 Plan History and Process Overview

A Policy for Resource Management of the Eastern Slopes was approved by Cabinet in July 1977 and subsequently revised in 1984. It initiated integrated resource planning as the means for effective management of the resources of the Eastern Slopes region of Alberta. Sub-regional integrated resource plans are intended to implement and refine, as necessary, the Eastern Slopes Policy's regional land use zoning, priorities, objectives and guidelines. These plans will allocate land uses to specific areas, mitigate conflicts and act as a decision-making format.

In January 1978, the Rocky-Clearwater region was identified as a priority for integrated resource planning. In response, an intermediate level of planning, the Rocky-Clearwater Management Overview (ENR Report No. 122, 1980) was completed and approved. This report established the priorities for the completion of plans within the Rocky-Clearwater region. Four sub-regional plans were proposed to implement the Eastern Slopes Policy and the Rocky-Clearwater Management Overview. The Brazeau-Pembina plan was initiated in 1979. The second priority, the Rocky-North Saskatchewan plan, was initiated in 1980.

The remaining components of the Rocky-Clearwater region, known as Chungo-Cline-Nordegg and Ram-Clearwater, were identified as having a recreational emphasis. Together with a component of the Bow/Crow Forest, known as Red Deer-James, these three map sheets were combined into the Nordegg-Red Deer River Sub-Regional Plan (Figure 1).

Following the announcement of the Brazeau Timber Development Area, the Nordegg-Red Deer River plan was formally initiated in December 1981, at the request of the deputy minister of Renewable Resources. An interdepartmental planning team was formed, representing provincial agencies with resource management responsibilities and agencies directly affected by planning decisions. The Resource Planning Branch of Alberta Energy and Natural Resources (subsequently Alberta Forestry) was assigned to co-ordinate the team's activities including team process, development of documents and public involvement.

Three documents are generally provided to the public before the approval of the Final Plan. These are the Terms of Reference, Resource Management Policy and Draft Plan.

The Terms of Reference document for this planning exercise was developed by the planning team and approved by the Resource Integration Committee in January 1982. The Terms of Reference described the

planning area, the policy and planning context, the purpose and intents of the plan, resource management concerns, data collection responsibilities, the decision-making process, the composition of the planning team and a proposed schedule of activities. Various public groups were invited to input into the development of the Terms of Reference and, subsequently, to review the approved document.

Similarly, the Resource Management Policy was developed by the team, approved by the Resource Integration Committee (in August 1982) and distributed to government agencies and public groups for their comments. The Resource Management Policy document included a discussion of the policy formulation process, broad resource management objectives for the overall planning area, resource management objectives specific to smaller planning units and proposed revisions to the Eastern Slopes zoning. Public groups responded with their views on the Resource Management Policy document to the planning team in the period from October 1982 to March 1983. The contents of the Resource Management Policy, as modified by these discussions, further examination of resource information, refinement of agencies' objectives and executive direction have being incorporated into the Draft Plan.

The Draft Plan was reviewed by the same public groups in February 1984. A revised draft was the subject of open houses and public meetings in March 1985. Comments associated with this public review are contained in a Summary of Public Involvement and have been considered in subsequent draft plan revision.

1.3 Plan Purpose

The Terms of Reference lists numerous resource management concerns to be addressed. In general, these concerns relate to existing or potential conflicts among land uses. The conflicts include similar but competing land uses (e.g., grazing by livestock and wildlife), divergent land uses (e.g., landscape protection and minerals development), land uses requiring exclusive allocation of a land base (e.g., mines, recreation areas and ecological reserves) and inappropriate land uses (e.g., motorized vehicles in Prime Protection Zone) which do not conform to the intent of the Eastern Slopes Policy.

The general purpose of this planning exercise is to develop an integrated resource plan at a sub-regional level of detail. The plan provides positive direction for the integrated use and management of public resources within the Nordegg-Red Deer River planning area. The plan attempts to optimize resource use while maintaining the integrity

of the natural environment for the benefit of residents of Alberta. The plan does not apply to patent lands or federal lands, such as the Ya-Ha-Tinda Ranch and the Big Horn Indian Reserve. To ensure compatibility, the plan also considers land uses in adjacent areas. The intent of this planning exercise is:

- to resolve those resource management issues related to allocation of the land base;
- to delineate specific portions of the planning area to the most appropriate uses as determined by known criteria, and
- to produce a planning document that is forward looking, thorough and responsive to the needs of the resource management agencies, the private sector involved in resource activities and the general public.

More specifically, to provide direction for operational and annual work plans, this plan:

- resolves most of the resource management concerns outlined in the Terms of Reference;
- clarifies and integrates the various government policies (chapter 2) and objectives for resource management in the planning area (chapter 3);
- based on recent data, objectives and resource allocation proposals, recommends refinements to the Eastern Slopes zone boundaries, thus determining where various land uses may be permitted (chapter 4). The refined zoning maintains the original intent of the Eastern Slopes Policy;
- provides specific objectives and guidelines for achievement of the resource objectives stated in the Eastern Slopes Policy and for this planning area (chapter 4);
- makes land use activity recommendations at a sub-regional level of detail, provides guidelines to aid in the evaluation of future development proposals, and for phasing out existing land use activities which do not conform to the plan direction (chapter 4);
- indicates the implications of the decisions in the plan (chapter 4); and
- makes general recommendations for the implementation of the integrated resource plan, including appropriate review mechanisms (chapter 5).

1.4 Resource Summary

This planning area contains a wealth of resources water diverse and scenic landscapes timber wildlife minerals and native forage. These various resources have a history of associated human activities hunting fishing grazing of livestock timber harvesting coal mining fishing backcountry recreation, auto touring, and petroleum and natural gas exploration and extraction.

Without exception, demands are currently being made to maintain or provide for the continuing opportunity for these activities In the long term it is anticipated that demand will increase in most sectors of this spectrum of uses because of improved markets for resource products. population increases in the region and increasing amounts of leisure time.

The watersheds within the Nordegg-Red Deer River planning area drain into the North Saskatchewan and Red Deer rivers. The alpine and sub-alpine ecoregions within the planning area contain most of the headwaters of these two major river systems. This area produces large quantities of clean water for which there is a high demand. In addition to providing hydroelectric power (Big Horn Dam) shoreline habitat for wildlife and aquatic habitat for fish within the planning area, downstream uses include additional fish and wildlife habitat, irrigation and hydroelectric power, as well as consumption by municipal and industrial users.

Surficial deposits are generally coarse and stable within the area, resulting in an overall rating of low to moderate watershed sensitivity. Shallow soil development requires that surface disturbances be controlled to maintain the productivity and stability of the land base.

This planning area's natural beauty, wildlife resources, ease of access, proximity to Jasper National Park and Banff National Park, Siffleur Wilderness and Whitegoat Wilderness and the relatively easy access for residents of Central Alberta have established its high recreational value. The area's value and capability for outdoor recreation attracts a high level of use, primarily in the summer. The western, mountainous portion of the planning area provides excellent opportunities for dispersed back-country recreation activities. hiking, photography, equestrian use, hunting, fishing and camping. Winter activities such as snowmobiling and cross-country skiing also occur, to a limited degree, within the area. Water-based activities,

including canoeing, kayaking, rafting and jet boating, are popular on the North Saskatchewan and Red Deer rivers and, to a lesser extent, on other waterbodies within the planning area. Recreational use of the planning area is concentrated along the David Thompson Highway, the Forestry Trunk Road and the Red Deer River. Numerous opportunities for intensive outdoor recreation such as day-use activities, group camping and autoaccess camping are available along these corridors. After increasing substantially through the 1970s, recreational use of the planning area has levelled off. In most areas, existing non-commercial recreation facilities are generally adequate to meet present demand. The area surrounding (but not including) the Kootenay Plains has potential as a park or recreation area.

There are a limited number of commercial recreational developments in the area (e.g., Mountain Aire Lodge, David Thompson Resort). The West Central Alberta Tourism Destination Area Study, commissioned by Travel Alberta, identified the western part of the planning area as able to provide numerous specialized activities as well as extensive tourism and recreational development opportunities. Private sector development of services and facilities is considered a priority in this area. Potential for a resort development has been identified adjacent to the Cline River. The planning area's accessible natural and historical features are valuable assets to tourist operations. The development of tourism opportunities is largely dependent upon adequate infrastructure, particularly transportation.

Once a coal mining town, Nordegg now serves as a service centre for the area's recreational, tourist, industrial and administrative activities. The townsite and other sites have been examined by Municipal District No. 99 and the Red Deer Regional Planning Commission to determine their potential to facilitate substantial growth. No site decisions will be made until demand warrants such facility expansion. Tourism, timber, recreation and coal development are the most likely sectors to cause this town's rejuvenation.

The area provides a diversity of habitats which supports provincially significant big game populations, including bighorn sheep, grizzly bear, Rocky Mountain goat and elk. Cougar, wolf, moose, mule deer and other species are also present. The area provides some of the most valued hunting opportunities along the Eastern Slopes. The fisheries resources of the area are also important regionally and provincially and furbearers are significant to the local economy.

The Nordegg-Red Deer River planning area contains all of the R6, R8, R9 and B6 forest management units and approximately 75 per cent of the R3 unit. Twelve coniferous quotas within these management units have had allocated approximately 10.6 per cent of the annual allowable cut. A further 0.9 per cent has been allocated in two miscellaneous timber use areas which were set up to meet local demand by private individuals and small operators. The remaining area represents one of the most important areas containing surplus volume in the province. It is both readily accessible and close to major markets.

The surplus timber, mainly mature and overmature pine, has been offered for development in the Brazeau Timber Development Area (TDA) proposal, approximately 40 per cent of which is in the planning area. A fibre using facility is required to fully use the vast area of smaller stems within the TDA. The Nordegg block of the Brazeau TDA covers most of the productive land base within the planning area. All surplus coniferous timber would be used if the TDA were fully allocated. Given the present age class distribution, the old growth pine and spruce stands may be susceptible to insect or disease infestations. Consequently, there is a need for more intensive management, which can be largely met through harvesting.

Grazing has a long history in the central and southern portions of the planning area. Good forage production, proximity to large markets and to privately held agricultural lands contribute to this use on Crown lands.

Sixteen grazing allotments and numerous grazing leases and permits are contained within the Red Deer-James and Ram-Clearwater map sheets. There are no grazing dispositions within the Chungo-Cline-Nordegg map sheet because of the lack of suitable sites with grazing capability. Overuse of the backcountry forage resources has raised concerns of site deterioration and of competitive effects on ungulates. Escaped or abandoned horses, found throughout the planning area, are a cause for concern. Improved grazing and cultivation of cereal crops occurs along the eastern edge of the Red Deer-James map sheet, particularly within the White Area.

Petroleum and natural gas constitute virtually all of the minerals currently being produced in the planning area. The planning area lies across the Rocky Mountains and foothills, with the eastern tip of the area extending into the interior plains. The thick sequence of Paleozoic and Mesozoic sedimentary strata is moderately to highly disrupted by folds and faults, complicating exploration for and extraction of most minerals.

Estimated 1984 production of petroleum was 450 000 m^3; production of natural gas was 1.7 billion m^3. Reserves of petroleum and of natural gas are approximately 5 million m^3 and 44 billion m^3 respectively (about 0.8 per cent and 2.4 per cent of provincial reserves). The importance of the planning area in the search for new reserves and further production is indicated by the fact that 40 per cent of the area is leased as Crown petroleum and natural gas dispositions to oil companies, predominantly in the east and southeast. Five designated petroleum and natural gas fields are entirely within and nine other fields are partially within the planning area.

Hydrogen sulphide is associated with natural gas in five fields. Sulphur from the Ricinus, Ricinus West, Caroline and Burnt Timber fields is produced at processing plants outside the planning area.

Large reserves of coal exist in the four designated coal fields and in four isolated coal deposits within or partly within the planning area. The total volume of coal resources is calculated to be over 1.1 billion tonnes, almost all of metallurgical grade (based on Energy Resources Conservation Board (ERCB) Report ST 85-31). About one third of this is classed by the ERCB as being recoverable reserves under present conditions. Exploration has mainly been limited to designated deposits, and potential reserves of coal are undoubtedly much greater. Prior to 1956 four underground mines operated in the Nordegg field, producing almost nine million tonnes of coal in total. There are no coal mines and no coal production in the area now.

Extensive areas of quarriable limestone exist along the mountains where Paleozoic limestone strata have been thrust to the surface. Commercial reserves of limestone are limited to areas where existing access routes allow economical transport of the product. Two approved limestone quarrying projects are located in the planning area.

Aggregate materials such as sand and gravel are located throughout the planning area, but are economically viable only in close proximity to development projects.

To date, only limited archaeological investigations have been conducted in the planning area. However, based on current information, the likelihood of the existence of significant historical resources is considered to be high in a variety of locations, in particular, passes, alpine areas, terraces along streams and rivers, outcrops of rock formations suitable for stone tool manufacture and exposed or high alpine grassy areas.

Historically the area experienced very early economic exploitation based upon the fur trade, and between 1799 and 1865, a succession of trading posts in the Rocky Mountain House area were the centers of fur trading activity throughout the planning area.

Around the turn of the century, forestry became an important activity. By the 1930s, several logging and sawmill operations had developed, and associated structures were generally of a temporary nature. Generally, the historical reminders of the logging industry are a small network of forestry cabins, ranger stations and lookout towers, which were abandoned in the 1950s as communications and transportation technology changed.

In 1898 the federal government surveyed the area for its coal potential and found abundant reserves. Coal development activity began in the area in 1910, following the formation of the Brazeau Collieries Company in 1909. Operations commenced in Nordegg in 1913-1914 and continued until 1955. The discovery of additional historic structures and sites relating to the various phases of early coal mining is considered highly likely.

A number of fossil occurrences are known to exist in the planning area and include plants, ammonites, pelecypods and dinosaurs. Additional sites can be expected to be discovered in such locations as exposures along stream and river valleys as well as in outcrop materials along steep slopes and in road cuts.

2. POLICY AND PLANNING CONTEXT

Many government directives were considered in the development of the Nordegg-Red Deer River Plan. The most significant of these directions are discussed.

2.1 Green Area/White Area

In 1948, a separation was made (by Order-in-Council 113/48) between forested lands (the Green Area) and settlement lands (later referred to as the White Area) based on timber stands and soil surveys. The Green Area has generally been managed for multiple uses, except where specifically noted through legislation or other forms of regulation. The White Area was designated with the intention of making suitable agricultural lands available for settlement. This boundary has been adjusted since 1948 as better information became available (Figure 6).

This plan proposes further revisions in the Green Area/White Area boundary. (The proposed transfer of 10.25 sections from White Area to Green Area includes 1.25 sections of patent land. The proposed transfer of 40.5 sections from Green Area to White Area includes 31.75 sections of patent land. The net change in Crown land is one quarter section from White Area to Green Area.)

2.2 Rocky Mountains Forest Reserve

The Rocky Mountains Forest Reserve was established under federal legislation in 1910. The legislative responsibility was transferred to the Forest Reserves Act in 1948. In addition to its major purpose of conserving forests, this act governs the management of grazing including allotments (in conjunction with the Public Lands Act.

The Nordegg-Red Deer River planning area includes 16 grazing allotments (or parts thereof) as shown on Figure 7 and as listed in Table 1. (This plan proposes a boundary adjustment for one grazing allotment.)

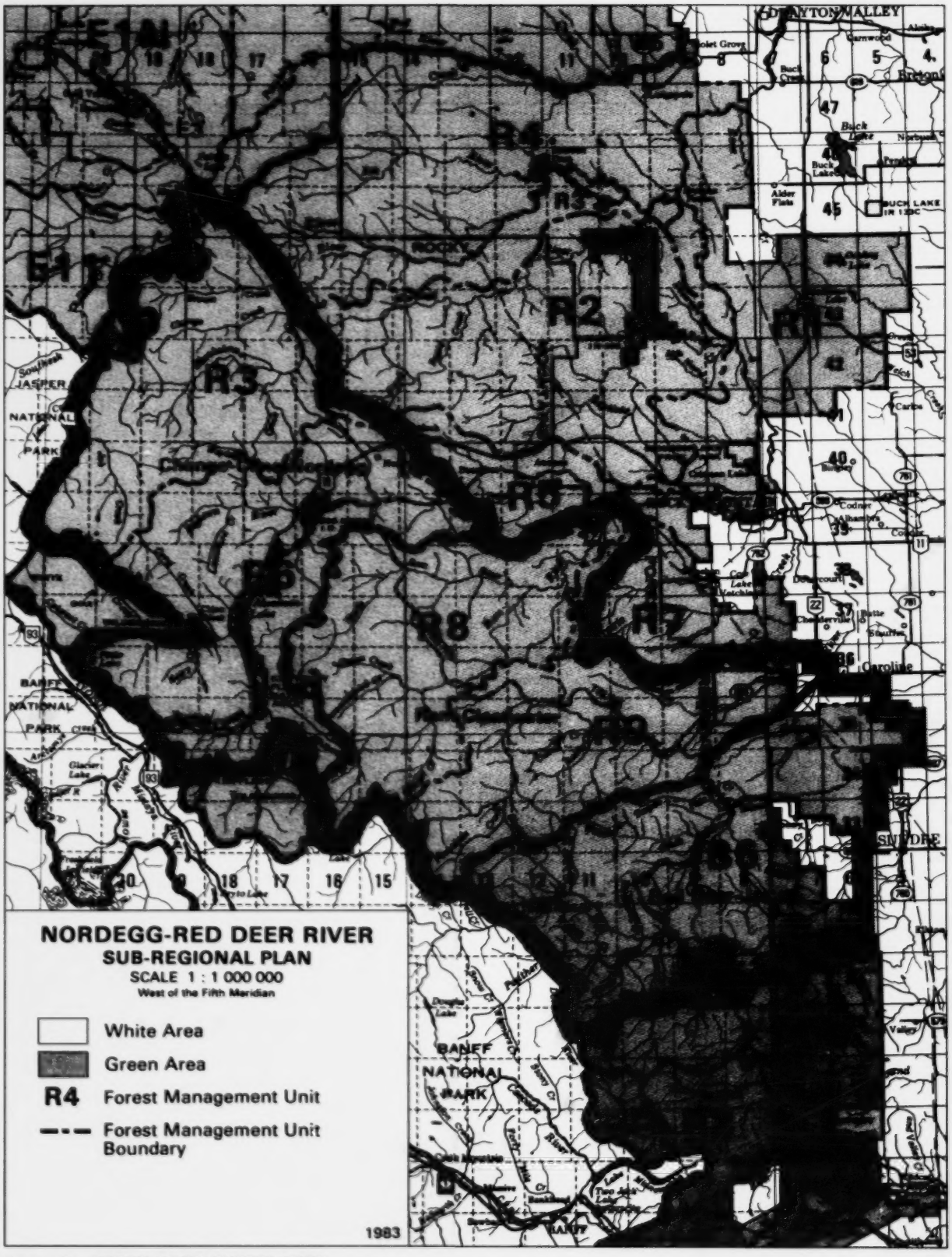


Figure 6. GREEN AREA/WHITE AREA

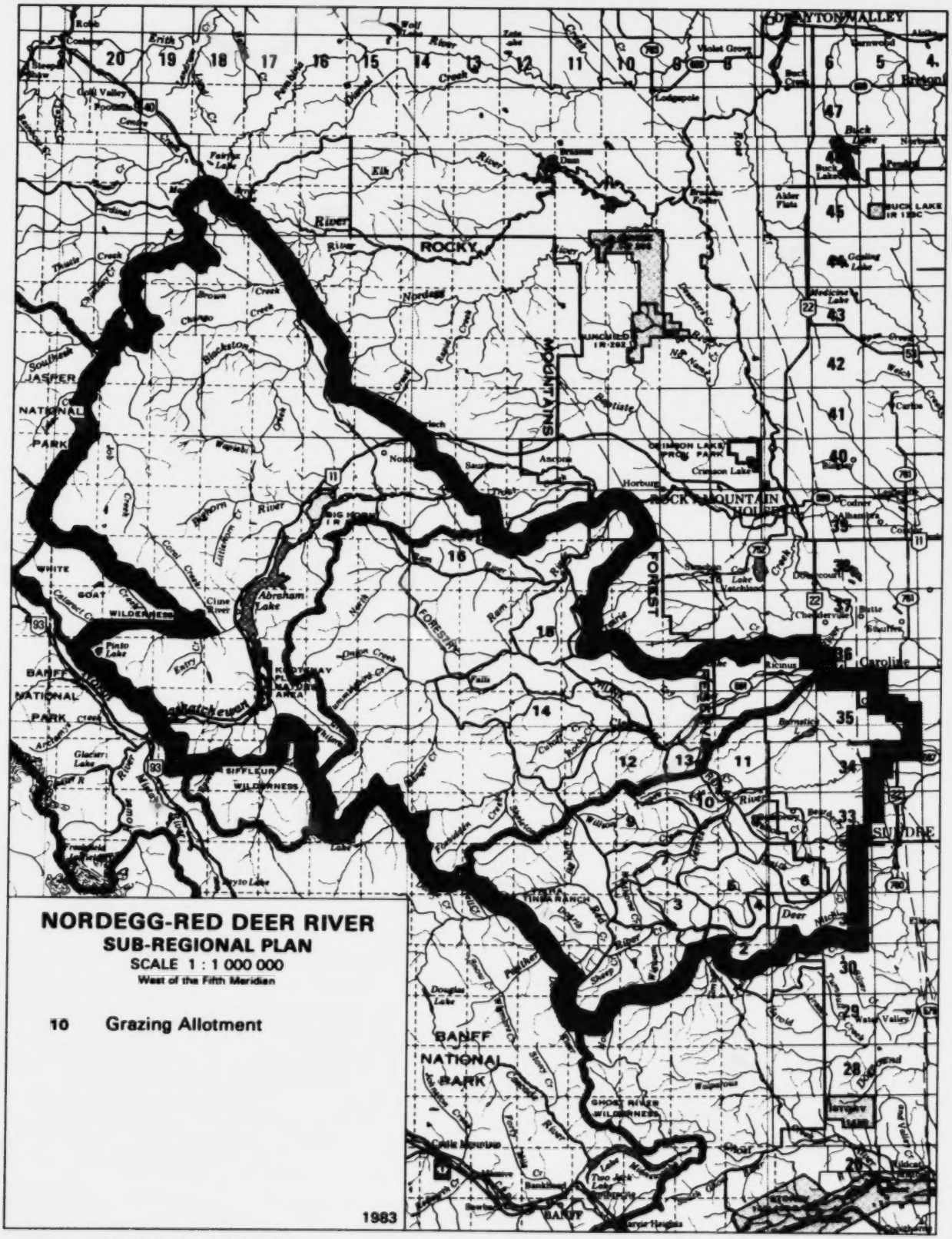


Figure 7. GRAZING ALLOTMENTS

TABLE 1
GRAZING ALLOTMENTS WITHIN THE PLANNING AREA

1. McCue Creek	9. Willson Creek
2. Lower Fallentimber (part)	10. Bread Creek
3. Upper Red Deer	11. Lower James
4. Lower Red Deer (part)	12. Limestone
5. Williams Creek	13. Moose Creek
6. Coalcamp Creek	14. Clearwater
7. Upper James	15. Fall Creek
8. Bearberry Creek	16. Ram River

2.3 A Coal Development Policy for Alberta

A Coal Development Policy for Alberta, released in 1976, guides the exploration and development of coal resources throughout the province. It classifies the province into four categories of suitability for different levels of exploration and development (Figure 8). The western, mountainous portion of the planning area is Category 1, in which no exploration or development is permitted. Other categories provide varying degrees of restriction on coal-related activities. The policy is currently being revised but the revision is not yet approved. The revised policy may rely primarily upon the integrated resource planning system to provide geographically specific direction on the suitability of coal exploration and development activities, considered in the context of all land and resource uses on public land. This plan anticipates these changes in the coal policy, and thus contains objectives and guidelines for coal activities in chapters 3 and 4, generally without relying upon the categorization in the present policy.

Note that until the revised policy is approved, the 1976 policy will apply. Where the Coal Policy is more restrictive in regard to exploration and development than this plan, administrative procedures relating to exploration, development and leasing will take direction from the Coal Policy.

2.4 A Policy for Resource Management of the Eastern Slopes

A Policy for Resource Management of the Eastern Slopes, Revised 1984 provides guidelines, objectives and other policy direction for integrated resource management and planning for the entire Eastern Slopes region including the Nordegg-Red Deer River planning area. The document is divided into two major parts:

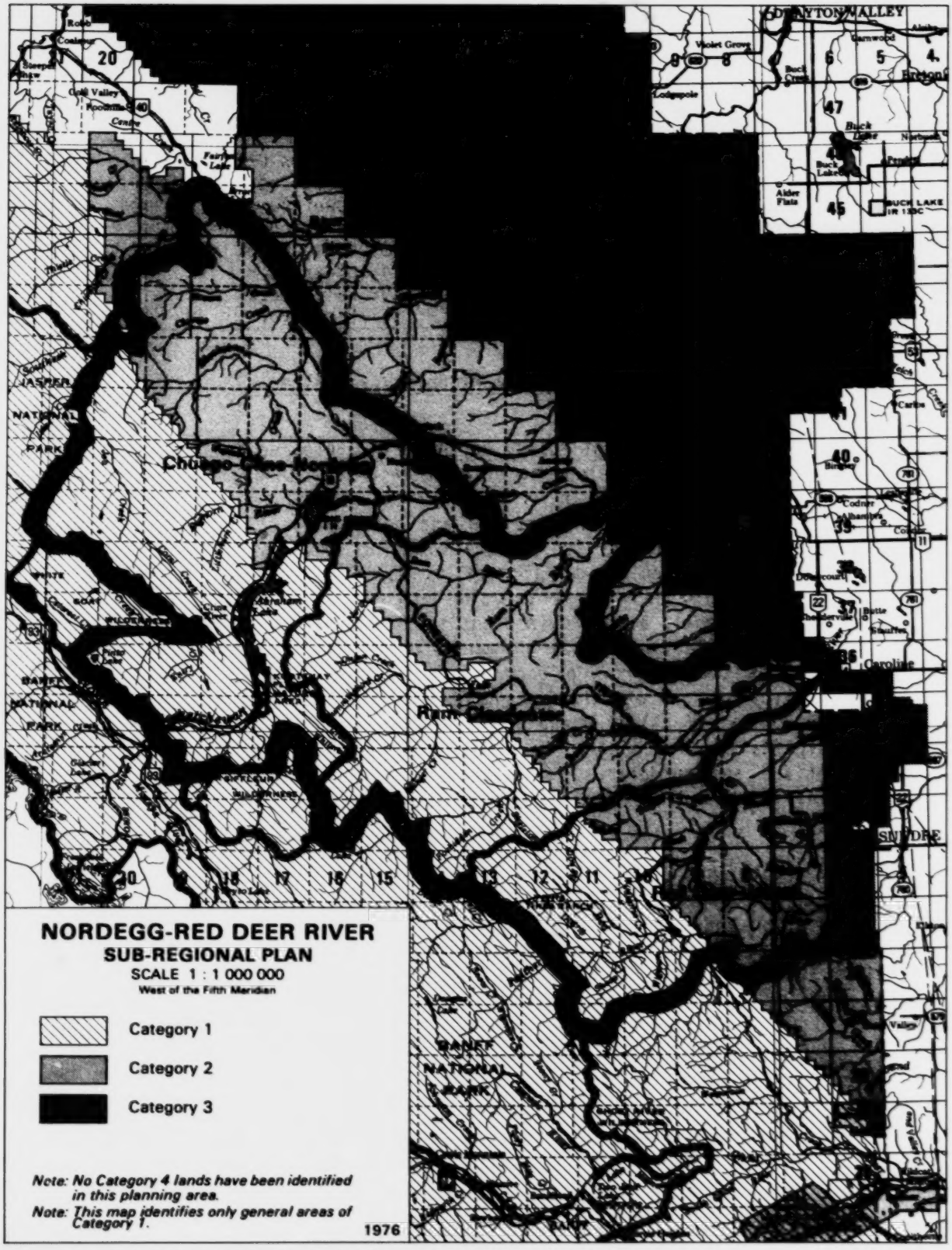


Figure 8. LAND CLASSIFICATION FOR COAL EXPLORATION AND DEVELOPMENT

1. Eastern Slopes Policy, containing policy statements which define the management intentions for the region, and policy guidelines which identify the most important resource opportunities in the region and the major priorities to be considered in the management of the Eastern Slopes.

2. Regional Plan for the Eastern Slopes, which provides more specific resource management direction. It has three main parts:
   - regional objectives
   - regional land use zones
   - implementation

The regional plan relies upon land use zoning to identify units of land for which intents and objectives are specified. Table 2 lists the general intent for each of the following land use zones: 1) Prime Protection; 2) Critical Wildlife; 3) Special Use; 4) General Recreation; 5) Multiple Use; 6) Agriculture; 7) Industrial; and 8) Facility. A representative group of activities is categorized for compatibility with the intent of each of the eight land use zones in a Table of Compatible Activities and is reproduced here as Table 3. The zones are defined by their intents, not by the table.

Integrated resource plans must conform generally to the Eastern Slopes policy and regional plan, including the Table of Compatible Activities. The Table of Compatible Activities and regional zoning maps have provided interim direction for land use decisions prior to the completion of this plan. They also provided guidance in the preparation of the guidelines in this plan. However, it should be recognized that additional and more detailed information may support decisions in the sub-regional plan that would be contrary to the direction contained in the regional document. The sub-regional plan supercedes and takes precedence over the regional plan. Once this plan is approved by Cabinet Committee, the table and regional zoning maps will no longer formally apply within the planning area. The (1977) regional zoning is shown in Figures 9, 10 and 11.

Where the activities permitted in a part of the planning area vary significantly from the regional Table of Compatible Activities, the mapped zoning will be flagged to indicate this refinement (see chapter 4).

The implementation section contains guidelines for implementing the regional plan, including direction on existing (prior) land use commitments, sale of public land, recreational townhouse development,

TABLE 2
INTENTS OF THE EASTERN SLOPES POLICY ZONES

#	ZONE	INTENT
1	Prime Protection	To preserve environmentally sensitive terrain and valuable aesthetic resources.
2	Critical Wildlife	To protect specific fish and wildlife populations by protecting aquatic and terrestrial habitat that is essential to the maintenance of those populations.
3	Special Use	To recognize historical resources, scientific research areas and lands which have unique management requirements or legislative status or which can not be accommodated elsewhere.
4	General Recreation	To retain a variety of natural environments to serve as a focus for a wide range of outdoor recreational activities.
5	Multiple Use	To provide for the management and development of the full range of available resources, while meeting long term objectives for watershed management and environmental protection.
6	Agriculture	To designate lands which are currently utilized or are considered suitable for cultivation or improved grazing.
7	Industrial	To recognize existing or approved industrial operations.
8	Facility	To recognize existing or approved settlement and commercial development areas.

TABLE 3 COMPATIBLE ACTIVITIES BY LAND USE ZONE

ZONE / ACTIVITY	1 PRIME PROTECTION	2 CRITICAL WILDLIFE	3 SPECIAL USE	4 GENERAL RECREATION	5 MULTIPLE USE	6 AGRICULTURE	7 INDUSTRIAL	8 FACILITY
Non-motorized recreation	■	■	▒	■	■	■	▒	■
Fishing	■	■	▒	■	■	■	▒	■
Hunting	■	■	▒	▒	■	■	▒	■
Scientific study	■	▒	▒	▒	■	■	▒	□
Trapping	■	▒	▒	▒	■	■	■	■
Trails, non-motorized	▒	▒	▒	■	■	■	□	□
Transportation & utility corridors	▒	▒	▒	▒	■	■	▒	■
Primitive camping	▒	▒	▒	■	■	■	■	■
Intensive recreation	▒	□	▒	■	■	■	□	□
Off-highway vehicle activity	□	▒	▒	▒	■	▒	▒	■
Logging	□	▒	▒	▒	■	■	■	■
Domestic grazing	□	▒	▒	▒	■	■	■	▒
Petroleum and natural gas exploration & development	□	▒	▒	▒	■	■	□	▒
Coal exploration & development	□	▒	▒	▒	■	■	■	▒
Mineral exploration & development	□	▒	▒	▒	■	■	■	□
Serviced camping	□	▒	▒	■	■	■	■	□
Commercial development	□	□	▒	▒	■	▒	▒	■
Industrial development	□	□	▒	□	■	▒	▒	■
Residential subdivisions	□	□	▒	▒	■	▒	■	▒
Cultivation	□	□	▒	□	▒	■	▒	■

■ Compatible Use — Uses that are considered to be compatible with the intent of a land use zone under normal guidelines and land use regulations.

▒ Permitted Use — Uses that may be compatible with the intent of a land use zone under certain circumstances and under special conditions and controls where necessary.

□ Not Permitted Use — Uses that are not compatible with the intent or capabilities of a land use zone.

These activities are only representative of the range of activities that occur in the Eastern Slopes. For these and any other activities, the possibility of whether they should or should not take place in a particular area must always be measured against the fundamental management intentions for that zone. Since economic opportunities are not all known in advance, site-specific developments may be considered in any zone.

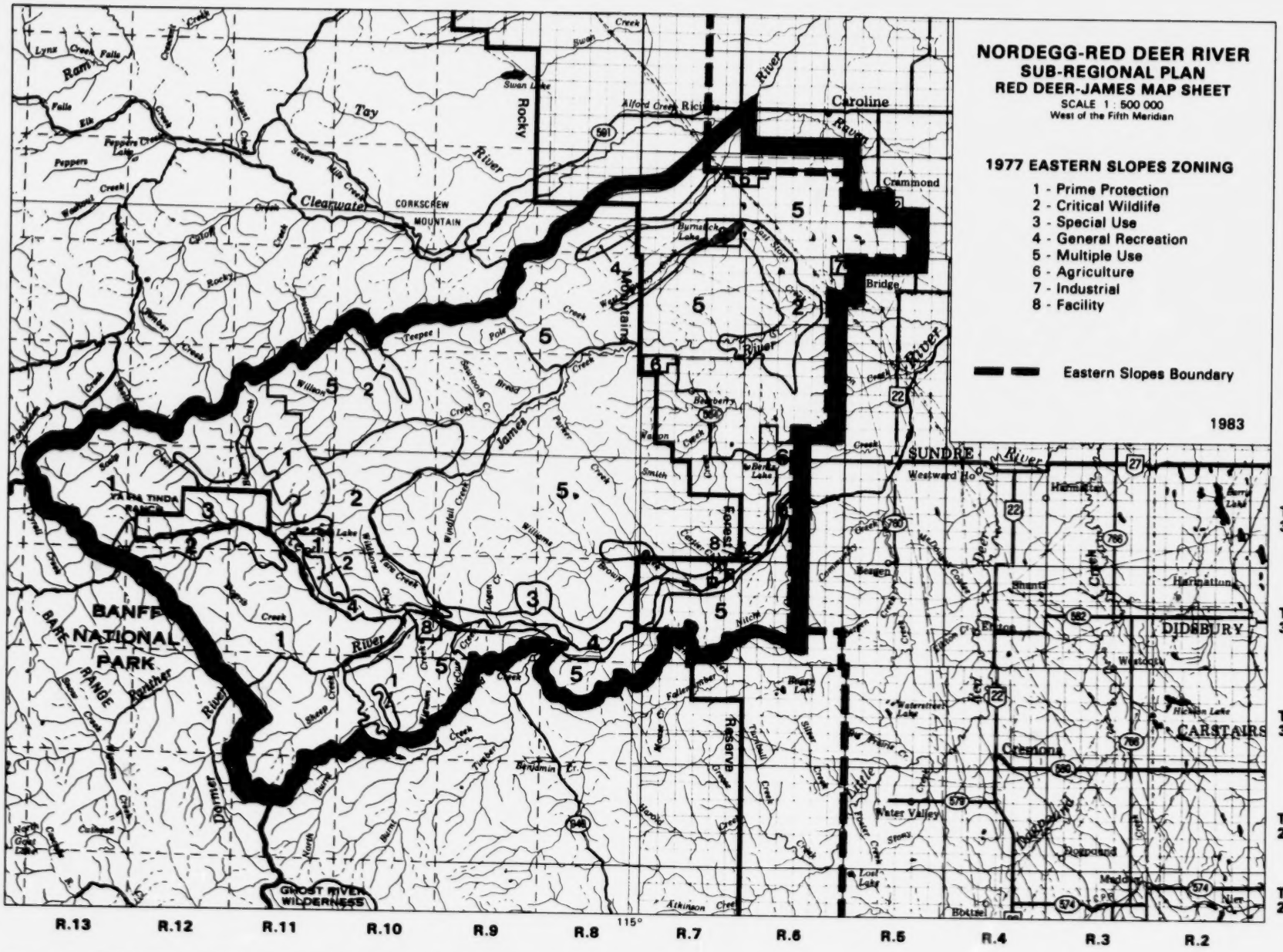


Figure 9. RED DEER-JAMES: 1977 EASTERN SLOPES ZONING

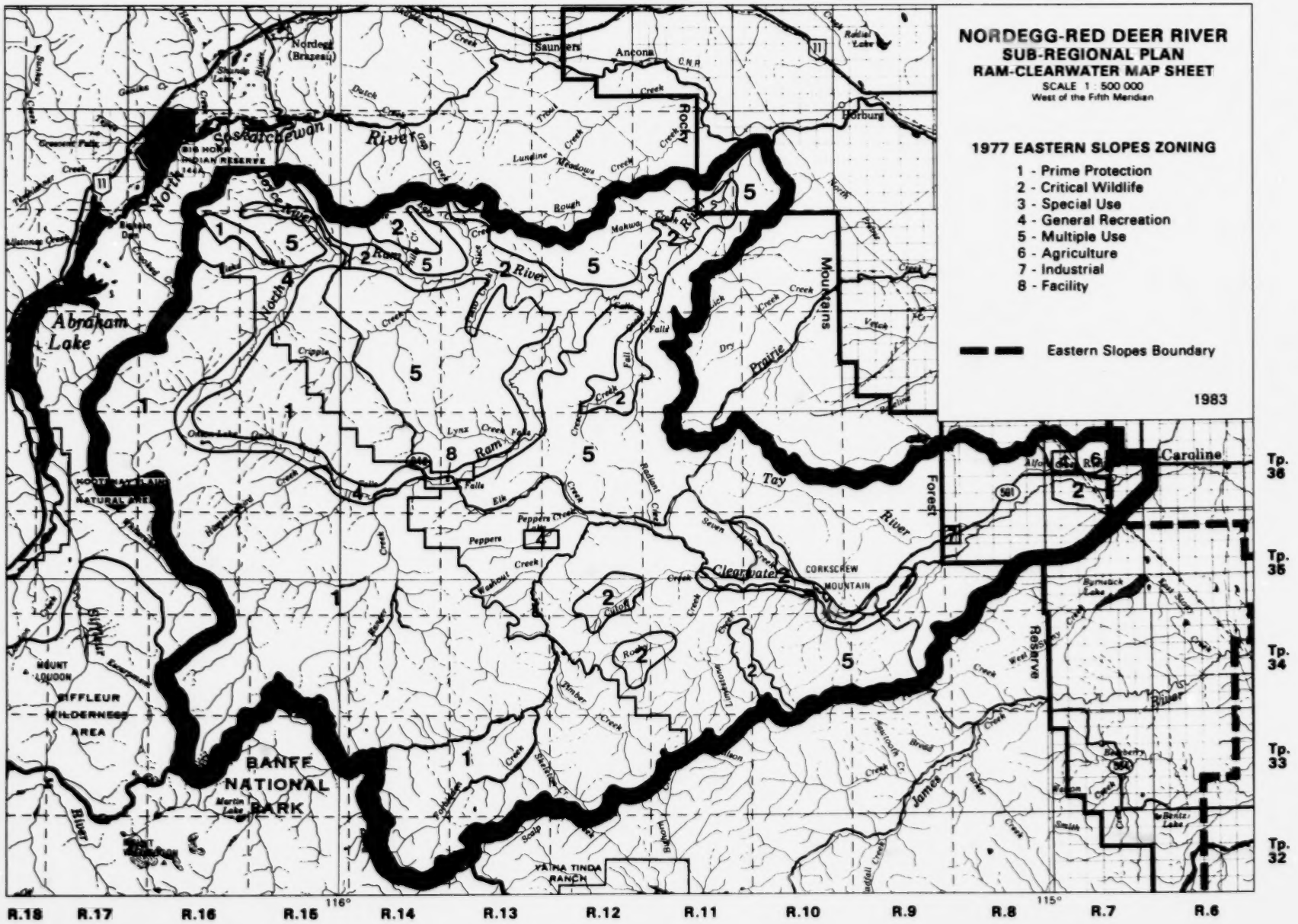


Figure 10. RAM-CLEARWATER: 1977 EASTERN SLOPES ZONING

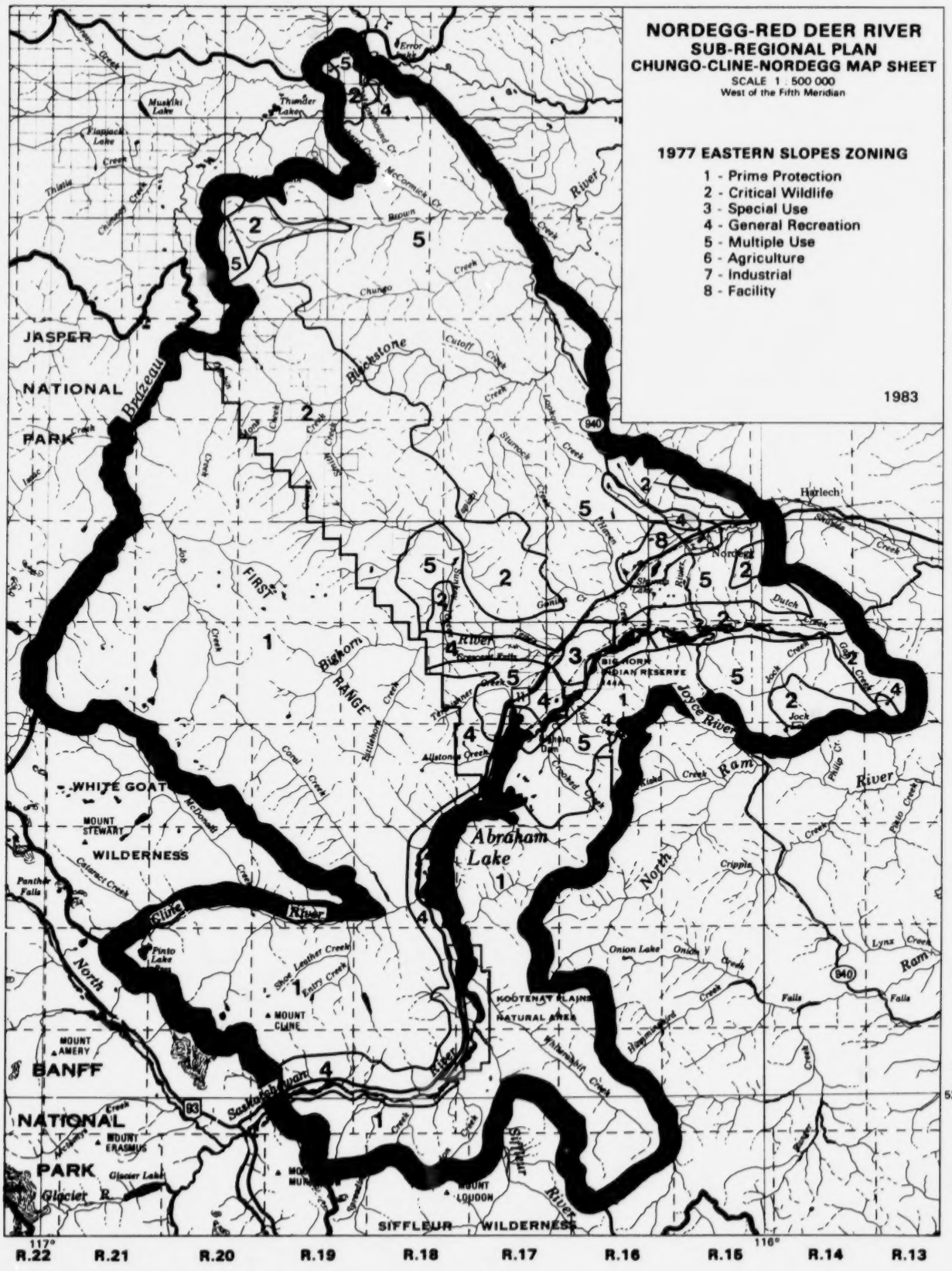


Figure 11. CHUNGO-CLINE-NORDEGG: 1977 EASTERN SLOPES ZONING

and petroleum and natural gas exploration and development. In general these guidelines apply to this sub-regional plan as well, with the exceptions noted below.

A number of guidelines in the regional plan provide exceptions to the general prohibitions on activities in Zone 1 - Prime Protection contained in the Table of Compatible Activities. These guidelines have been expanded to apply to the other parts of the planning area where these activities are otherwise prohibited (e.g., step-out wells and existing commitments). These modified guidelines are contained in chapters 3 and 4 of this plan. Where these conflict with the guidelines in the regional plan, the guidelines in this plan shall apply.

2.5 Rocky-Clearwater Management Overview

The Rocky-Clearwater Management Overview establishes the development strategy for the Chungo-Cline-Nordegg and Ram-Clearwater map sheets as having a recreation emphasis. The report strongly recommends the enhancement of extensive, non-mechanized recreation opportunities in these two portions of the Nordegg-Red Deer River planning area. It also notes that considerable resource utilization activity can take place in the portions outside the Prime Protection Zone and General Recreation Zone without compromising the general intent for a recreation emphasis in the area. The Rocky-Clearwater Management Overview also notes that the Brazeau-Pembina and Rocky-North Saskatchewan planning areas "are capable of supporting more intensive recreation" than the Chungo-Cline-Nordegg and Ram-Clearwater map sheets of the Nordegg-Red Deer River planning area.

In general, the Rocky-Clearwater Management Overview provides significant policy direction related to priorities for renewable and non-renewable resource development, settlement, access, trails and off-highway vehicles, fish and wildlife habitat, and ecological resources.

2.6 Brazeau Timber Development Area

In 1981, the government of Alberta requested proposals for developing the uncommitted timber resources of the Brazeau Timber Development Area (Figure 12), covering a total area of 10 000 km^2 (3 860 sq. mi.). Companies bidding on the timber rights were invited to submit proposals

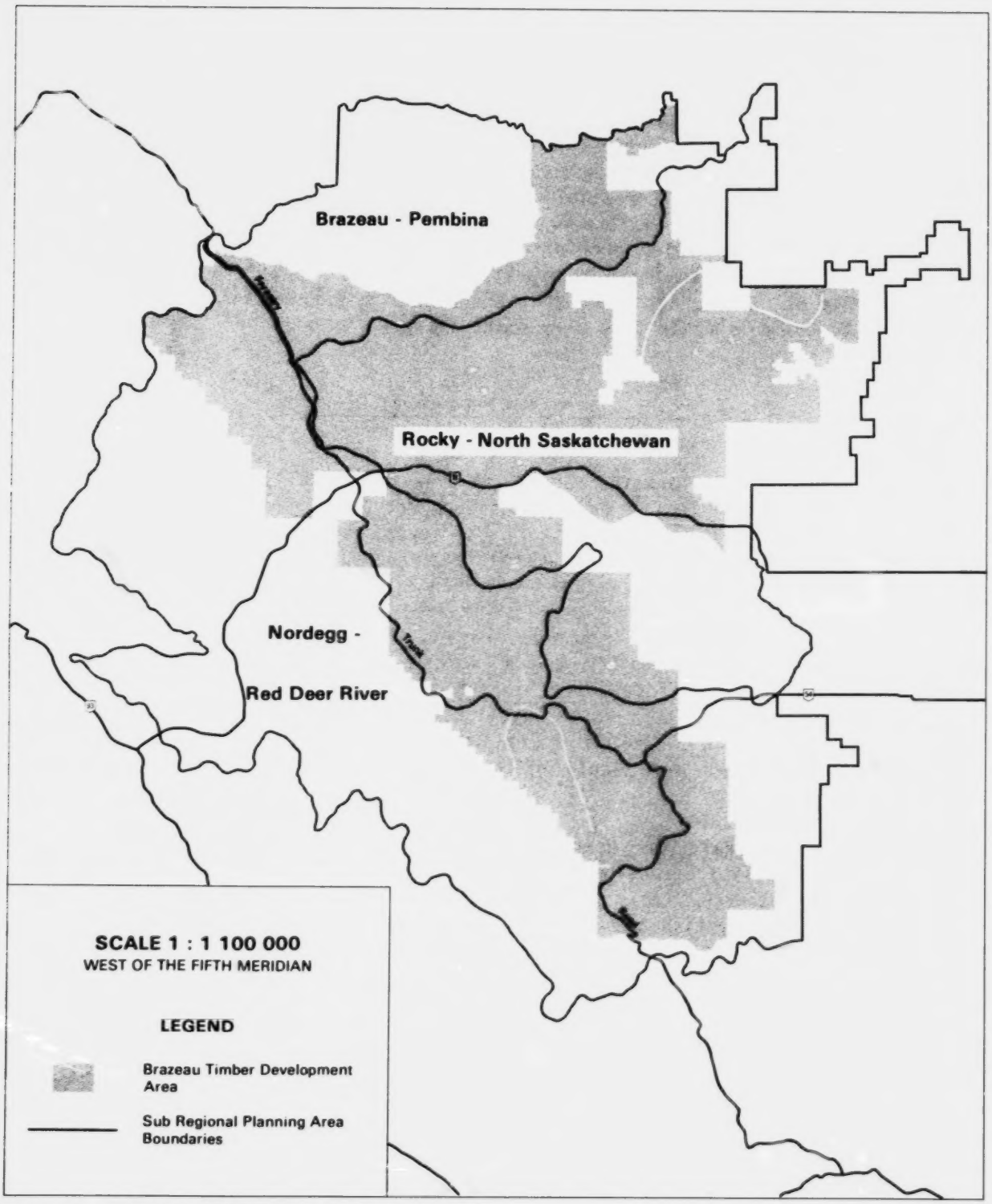


Figure 12. BRAZEAU TIMBER DEVELOPMENT AREA

by June, 1982 for the entire area or one of two blocks - Nordegg and O'Chiese. Public hearings on the Brazeau Timber Development Area proposals were held in August, 1982 in Drayton Valley and Rocky Mountain House. The eastern O'Chiese Block (which is outside the planning area) has been allocated through a forest management agreement. The Nordegg Block, most of which is in the planning area, remains available for a major timber development.

The Nordegg-Red Deer River planning area overlaps with the majority of the Nordegg block or approximately 40 per cent of the entire Timber Development Area. The remainder of the Timber Development Area is contained within the Brazeau-Pembina and Rocky-North Saskatchewan planning areas.

2.7 Commercial Trail Riding Policy

The development of a Commercial Trail Riding Policy led to the establishment of Commercial Trail Riding Regulations for the Green Area in 1979 under the Public Lands Act. These regulations define three classes of trail ride management areas: single operator (class I), multiple operator (class II), and multiple operator day-use (class III). The class III areas are the most heavily used and the most environmentally sensitive. Of the areas currently classified under this policy, most occur within the Nordegg-Red Deer River planning area (Figure 13).

2.8 Wilderness Areas, Ecological Reserves and Natural Areas

The Wilderness Areas, Ecological Reserves and Natural Areas Act consolidated the policy context for these three separate programs under one act. The Siffleur, White Goat and Ghost River Wilderness areas designated under the previous Wilderness Areas Act (1971) have been retained under the new legislation. The Siffleur and White Goat wilderness areas are located immediately west of the Nordegg-Red Deer River planning area.

Ecological reserves are to be designated to protect representative landscapes of the province. No ecological reserves have been established to date, although candidate areas have been identified. The act provides the public with the opportunity of submitting recommendations regarding wilderness areas and ecological reserves.

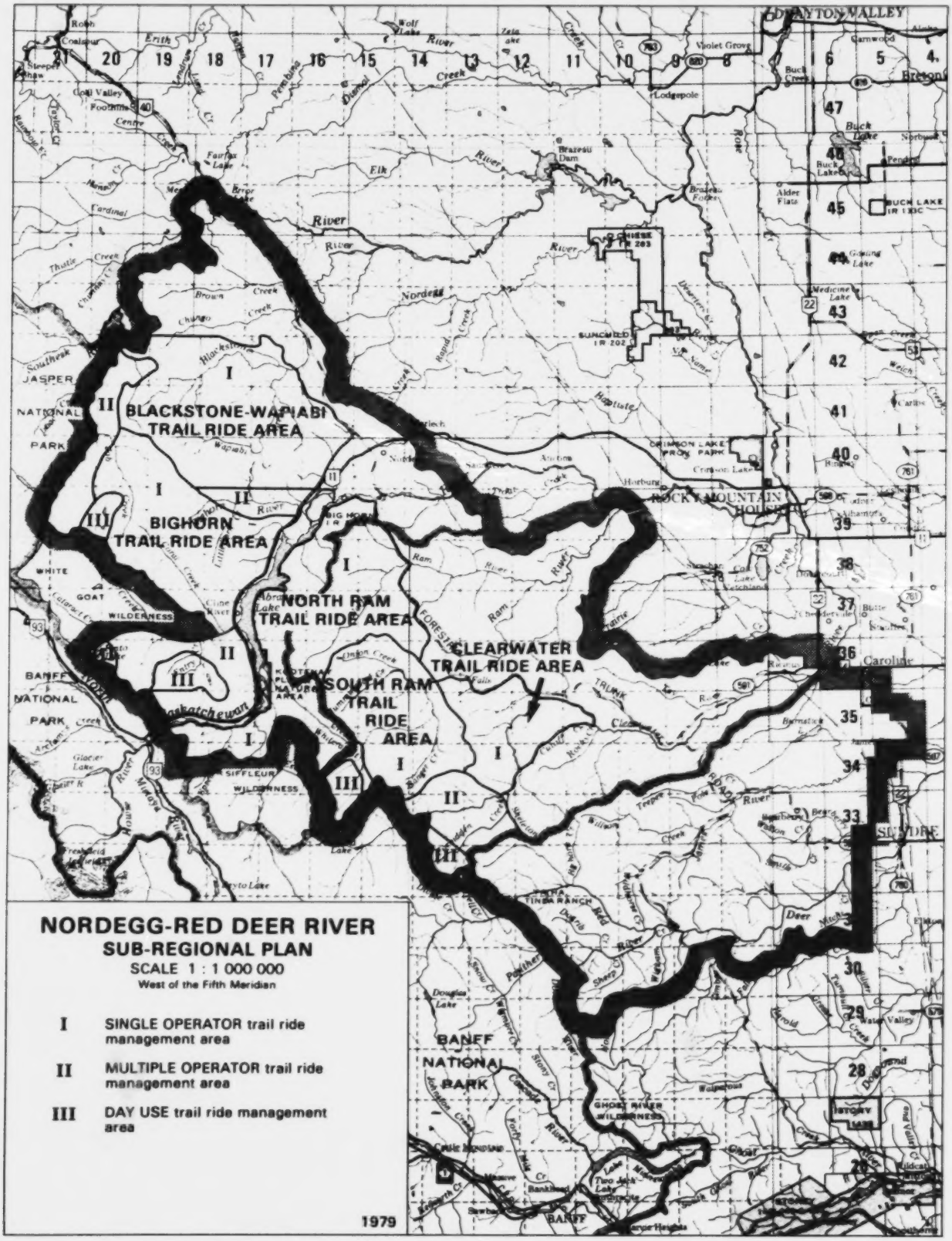


Figure 13. COMMERCIAL TRAIL RIDE AREAS

Natural areas, which are scattered throughout the province, were previously established under the Public Lands Act or were simply under reservation. These areas have a broader set of acceptable uses than ecological reserves or wilderness areas, including recreation, education and conservation. The Nordegg-Red Deer River planning area contains four small natural areas as well as the Kootenay Plains Natural Area.

The existing and proposed natural areas and the one proposed ecological reserve are indicated on the zoning maps as "ecologically significant areas".

2.9 Fish and Wildlife Policy for Alberta

The Fish and Wildlife Policy for Alberta, approved in 1982, contains fish and wildlife outdoor recreation, wildlife, fisheries and regulatory policy components. At a sub-regional scale, the most significant initiatives proposed are a provincial fish and wildlife outdoor recreation plan (p. 6), an assessment of the status of the fisheries and wildlife resources, their allocation and related issues (pp. 9, 17). Meeting the objectives stated in this plan will achieve some of the overall fish and wildlife projected demand targets to be identified in the provincial fish and wildlife outdoor recreation plan.

2.10 Designated Vehicle Routes

In many foothills areas, a very high number of access routes are available to motor vehicles. Intensive recreational use of these routes is causing conflicts with other resource uses. Where oil and gas exploration and development have been most intense, the landscape is crisscrossed with seismic lines and wellsite access roads. When motor vehicles use all of these routes, wildlife are put under stress as there is no relatively safe place to which they can escape. Erosion and stream sedimentation can be excessive as well.

To reduce this excessive access, Alberta Forestry has proposed a program of designated routes. Within an area subject to the program, a certain fraction of roads or trails in the area would be selected for recreational use by motor vehicles (the "designated routes"). The remainder would have more restricted access. Routes would be selected to ensure adequate access throughout the area. The concept applies only to recreational use and not to commercial or industrial access.

Application of a designated routes program will ensure an adequate level of utilization of the available fisheries and wildlife resources, while allowing populations to increase to desired levels. The quality of the fishing and hunting should also improve by allowing the user to select the preferred area and type of access. Present conflicts occurring between motorized and non-motorized recreational users should be substantially diminished, and the success of watershed reclamation and tree planting projects should be enhanced.

Many details of the program remain to be decided before implementation. These include:

-- whether the program is to be voluntary or by regulation;
-- whether seasonal restrictions are appropriate;
-- whether separate restrictions should be applied to different types of motor vehicle, such as trail bikes, trucks, low ground pressure all-terrain vehicles and snowmobiles; and
-- questions of maintenance and liability, especially on industrial roads.

The government will carry out a pilot study of the designated route concept, over a limited area of the Rocky/Clearwater Forest. The public will be involved in both the pilot study and in the subsequent selection of routes before wide implementation of the concept in the Nordegg-Red River Planning area.

3. RESOURCE MANAGEMENT STRATEGY

The scope of the planning team's discussions has been modified and refined throughout the planning process. The items discussed by the planning team were initially limited to issues and concerns stated in the Terms of Reference (1982). Existing government policies and government agency submissions resulted in the formulation of a broad set of directions (referred to as broad resource management objectives) in the Resource Management Policy (1982). Refinement and revision of the 1977 Eastern Slopes zoning maps, based on these objectives and more detailed information, also formed part of the Resource Management Policy. Planning team discussions and public responses to the documents resulted in revisions and further refinement to these broad directions, as stated in this chapter, and to the zoning as shown in the maps at the back of this plan.

The resource management strategy, or general scope of the Draft Plan consists of broad resource management objectives and guidelines (Table 4). A broad resource management objective states a desirable condition to be maintained or attained for the entire planning area. A broad resource management guideline states a general resource management procedure or activity which is required to attain the broad resource management objectives (and subsequently more specific objectives for each Resource Management Area contained in chapter 4).

The zone intents and the Table of Compatible Activities (Table 3) from the regional plan generally apply to the zones in this plan. Based on more complete information and a more detailed planning scale, the sub-regional plan has refined the direction of the regional plan. Consequently, the direction contained in broad resource management objectives and guidelines, and in more specific resource management intents, objectives and guidelines may modify or supercede the provisions of the regional plan, in particular the provisions of the Table of Compatible Activities (Table 3).

At a more detailed scale than this plan, site specific consideration of whether an individual activity is appropriate at a particular location may result in a decision which is apparently contrary to the zoning or guidelines in this plan, based on more detailed site information and the specific description of the activity (e.g., technology employed, mitigation methods).

The overriding consideration in the decision whether a specific activity should or should not take place at a particular location is a comparison of the particular activity or proposal against the management intents and objectives for the area stated in this plan.

Table 4

RESOURCE MANAGEMENT STRATEGY

Watershed

Broad Objectives	Broad Guidelines
To manage the land use activities to provide optimum production of water in terms of quality (as defined by suspended sediments) quantity and timing and for the maximum protection of the soil, and to maintain natural stream flows.	Management of the planning area will reflect the established priority of watershed protection.
To preserve the inherent productivity of the land through soil conservation practices, including minimization of erosion.	Where appropriate, common linear development corridors and existing access will be used.
To maintain a reliable supply of clean water within the planning area and downstream.	Special watershed management considerations will be necessary in upper elevation headwater areas.
To maintain the long-term integrity of natural watercourses free from channel degradation.	Contacts with streams and crossing of streams will be kept to those that are absolutely necessary.
To maintain the water quality of high mountain and other lakes within the planning area.	Seasonal restrictions will be placed on land use activities in poorly drained and highly erodible areas, where appropriate.
To recognize the potential for hydro-electric development within the planning area.	Better information on the effects of land management on water quality, quantity and timing will be required.
To recognize the hazards associated with steep slopes and flood prone areas within the Red Deer, James, Ram, North Saskatchewan and Brazeau river valleys.	Surface disturbances will be reclaimed promptly.

Wildlife

Broad Objectives	Broad Guidelines
To maintain and/or increase natural wildlife populations, including: a) to increase ungulate populations in all Resource Management Areas (except elk in RMAs C and D); b) to maintain or increase furbearers and furbearing carnivores (except bears and wolves in fringe agricultural areas and at high density recreation sites);	Wildlife protection areas and habitat management areas will be recommended for those habitats which would be enhanced, on a priority basis. Access to wildlife protection and habitat management areas may be regulated under the Wildlife Act (RSA 1970, c.391).

Wildlife

Broad Objectives	Broad Guidelines
c) to maintain, increase or reintroduce scarce and extirpated species such as caribou, fisher, river otter and peregrine falcons when stocks become available, subject to positive feasibility studies.	Hunting and trapping regulations will be adjusted, on an as required basis, to match the licenced hunting and trapping harvest to the desired population levels of the various species.
To maintain and/or increase the quality and quantity of suitable aquatic and terrestrial habitat required to support wildlife populations at optimal densities. This would include. a) protecting habitat areas and migratory routes which are critical for the survival of specific wildlife populations; b) maintaining an adequate mosaic of habitat types to ensure survival of the entire range of wildlife species found in the area. c) enhancing or creating wildlife habitat in appropriate locations; d) minimizing disturbance of wildlife populations during sensitive time periods.	Regulation of animal densities will occur primarily by commercial trapping, recreational hunting and treaty Indian hunting.
	Fish and Wildlife Division will continue to review land use referrals so as to recommend means of minimizing impacts on wildlife populations and to recommend means of enhancing wildlife habitat.
To minimize harassment and habitat destruction around colonial nesting sites, eyries, winter feeding areas, dens, travel corridors and mineral licks.	Fish and Wildlife Division will continue to undertake co-operative projects with industry and other government agencies to enhance and/or maintain wildlife habitat through activities such as controlled burns and specially designed logging programs.
To minimize competition for feed, shelter and security between wildlife and domestic animals, including horses.	Use of wildlife will be regulated by the Wildlife Act.
To maintain or increase the existing annual production of forbs, grasses and deciduous species for utilization by wildlife.	Disturbance of wildlife will be minimized by controlling access (e.g., access closures, designated vehicle routes) and by controlling hunting activities.
To maintain the existing level of commercial trapping.	Forage units will be assigned specifically for ungulate use to ensure that desired populations are attained.
To provide a variety of recreational and commercial opportunities and to	Access may be temporarily restricted at identified problem sites to reduce the potential for bear/human conflicts.

Table 4

RESOURCE MANAGEMENT STRATEGY (Continued)

Wildlife

Broad Objectives	Broad Guidelines
meet future demands by ensuring the existence of diverse and viable wildlife populations. To minimize wildlife depredation problems without loss of recreational use of the problem species. To implement appropriate habitat improvement programs.	Areas important for wildlife are not restricted to the Critical Wildlife Zone. Fish and Wildlife Division will review land use referrals and develop disposition conditions in areas of interest whether in this zone or not.

Fisheries

Broad Objectives	Broad Guidelines
To maintain and/or increase natural fish populations and establish new fish populations in suitable locations. To maintain and/or increase the quality and quantity of aquatic habitat conducive to supporting fish populations at optimal densities. This would include: a) protecting habitat areas and migratory routes which are critical for the survival of specific fish populations. Habitat areas to be protected include: i) spawning areas, ii) overwintering areas, and iii) rearing areas; and b) enhancing or creating fish habitat in appropriate locations. To provide a variety of angling opportunities by enhancing the diversity of fish species available, angling methods and angling locations. This may include development of new fisheries through stocking barren waters, establishing new ponds, enhancing stream habitats and stocking beaver ponds. To maintain appropriate types and amounts of public access to fisheries within this planning area.	Angling regulations will require regular review in relation to angler use, harvest levels and fish population conditions to ensure the long term survival of naturally reproducing resident sportfish populations. Periodic angler surveys will be required on lakes and streams to measure recreational use and fish harvest. Fish stocking programs which may create demands for recreational facility development will be referred to the Alberta Forest Service. Fish and Wildlife Division will continue to review and provide input to land use referrals on activities which have potential to impact the planning area's fisheries. Alpine and subalpine lakes will be managed according to the Alberta High Mountain Lakes Fisheries Management Program. This program requires cooperation with the Alberta Forest Service to manage access to and use around these lakes.

Fisheries

Broad Objectives	Broad Guidelines
To obtain a service standard that would provide a success rate of 0.3 fish per angler hour on naturally reproducing populations and high mountain lakes and 0.5 fish per angler hour on productive stocked lakes. To monitor and document recreational use of fisheries within this planning area.	Fish and Wildlife Division will coordinate government referrals on any proposed fishery development projects, so as to ensure the involvement of affected agencies. Any off-highway vehicle recreation trail developments will be planned in conjunction with Fish and Wildlife Division to ensure that such trails do not damage critical fish habitats and that adequate stream crossings are installed. Creel census will be conducted at five year intervals, following established procedures. Any public lands which are sold will include ecological corridor agreements, where needed to ensure waterbody protection and retention of adequate buffers. Waterbodies important for fisheries are not restricted to the Critical Wildlife Zone. Fish and Wildlife Division will review land use referrals and develop disposition conditions in areas of interest whether in this zone or not.

Recreation

To provide and maintain trail systems with associated support facilities and staging areas for equestrian use, cross-country skiing, off-highway vehicle use, snowmobiling, water routes and interpretive programs in wildland and high quality natural settings. To provide and maintain facilities for auto access, day-use and group camping activities as demand warrants.	Recreation program plans will determine the priority of and need for the development of specific trails and recreation facilities. Off-highway vehicle restrictions may be applied in certain areas to alleviate environmental impact such as wildlife disturbance, watershed degradation and terrain damage, and to maintain these areas' wildland character for recreation.

Table 4

RESOURCE MANAGEMENT STRATEGY (Continued)

Recreation

Broad Objectives	Broad Guidelines
To protect areas identified as having high recreation potential.	Random camping will continue as a compatible activity in most areas. However, specific problem sites may be subject to closure and/or rehabilitation.
To maintain the aesthetic quality of the planning area for recreation purposes.	Proposals for industrial and resource extraction activities will recognize the planning area's emphasis on recreation.
To manage informal off-highway vehicle use and random camping activities.	Maintenance and upgrading of existing auto-access campground and trails will continue as required.
To maintain and/or increase opportunities for recreational use of fisheries and wildlife resources.	The compatibility with wildlife resources of serviced camping in the Critical Wildlife Zone will primarily be based on the size and location of the facility.
To consider the disposition of public lands for commercial and private recreation and tourism facility development.	Proposals for recreation facilities which may increase recreational angling pressure on sensitive or unique fisheries populations or habitats will be referred to Fish and Wildlife Division.
	Formalized trails will be maintained and regulated under The Forests Act.

Tourism

Broad Objectives	Broad Guidelines
To increase use of the planning area by resident and non-resident visitors by encouraging the provision of a wide variety of tourism opportunities and services.	A wide variety of tourism opportunities, such as commercial trail riding, river rafting, white water canoeing, outfitting/guiding operations and touring opportunities, will be encouraged, where applicable. The provision of support services to facilitate travel in and use of the area will also be encouraged.
To provide opportunities for the development of year round tourism facilities and services in the planning area to satisfy the needs of resident and non-resident visitors.	

Tourism

Broad Objectives	Broad Guidelines
To encourage the year round use of the planning area by tourists through access maintenance, upgrading and future development, as demand warrants.	Planning advice will be provided to assist existing and potential operators of commercial tourism facilities and services in the planning area. Marketing and demand information and promotion advice will also be supplied when possible.
To encourage the development of commercial and private recreation and tourism facilities, particularly by the private sector, on private and Crown land.	Monitoring of tourist use and demand will occur to assist in determining areas where access should be maintained or improved.
To encourage the development of infrastructure to enable the private sector to develop tourism resources.	Back-country overnight camps required for commercial trail ride operations will continue to be allowed in the Prime Protection Zone.
	Opportunities may exist for the development of commercial back-country lodges in the General Recreation and Multiple Use zones. Back-country lodges can serve as useful staging areas for dispersed recreation activities such as hiking, horseback riding and crosscountry skiing. Suitable areas for lodge development will require a wildland setting to be successful. Aesthetic qualities and other natural resource-based amenities will therefore be important considerations in possible site identification.
	When specific tourism developments are proposed by the private sector, responsible agencies will endeavor to be sufficiently flexible and responsive to encourage development to proceed, if compatible with the intents, objectives and guidelines of this plan.
	Site-specific feasibility studies should be undertaken by potential commercial recreation and tourism facility developers, and approved, prior to major private sector developments.

Table 4

RESOURCE MANAGEMENT STRATEGY (Continued)

Ecological and Historical Resources

Broad Objectives	Broad Guidelines
To assess, preserve and manage representative and unique examples of the natural features, landscapes and ecosystems of the foothills and Rocky Mountain natural regions of Alberta. To provide for scientific, recreational and educational use of ecologically significant areas. To identify management practices which are known to be necessary to the maintenance or enhancement of the resource values of ecologically significant areas. To protect historical resources from potential or actual impact related to future resource development and to conserve these resources for future generations.	A protective notation will act as a holding mechanism for each ecologically significant area until the form of any further protection, such as natural area designation, is approved and established. For any areas approved as ecological reserves or natural areas, a management plan may be prepared by an interdepartmental planning team. The plan will outline the purpose, its boundaries, permitted uses, management responsibility, financial implications and rehabilitation, if appropriate. Existing dispositions considered as non-conforming uses of any ecological reserves and natural areas will be phased out as soon as possible. All motorized vehicles will be prohibited within any ecological reserves and natural areas except on routes or areas specifically designated for the purpose. Restrictions on public use will be applied when necessary to protect the integrity of ecologically significant areas. These may be applied through regulation such as natural area designation. Resource uses in the planning area resulting in land surface disturbance may require Historical Resources Impact Assessments to be conducted prior to development occurring, as outlined under Section 33(2) of the Historical Resources Act. The Archaeological Survey of Alberta will participate in the land use referral process, to review proposed development projects within those areas of the RMAs considered to be of high historical resource potential, as outlined by specific RMA.

Ecological and Historical Resources

Broad Objectives	Broad Guidelines
	Proposed and existing natural areas are indicated on the maps in this plan as "ecologically significant areas".
Timber	
To provide within the forest land base an area which will sustain a major forest industrial development for the region, while maintaining existing timber commitments. To provide maximum use of the sustainable annual cut of coniferous and deciduous wood fibre. To optimize the use (e.g., by salvage harvesting) of timber on areas outside the sustained yield land base in response to agricultural development and other land uses. To increase the level of productivity of wood fibre resources for commercial use through more intensive forest management practices. To manage the occurrence of fire, either natural or prescribed, to provide a vegetation mosaic that will generate maximum benefits for all forest resource uses. To protect forested areas from damage and destruction by insects, disease and fire, in ways that are optimal for adopted resource management objectives. To continue reclamation of industrial disturbances where industrial dispositions have expired.	No other significant deletions from the area in sustained yield timber management are anticipated to meet the stated resource management objectives. Modification of timber harvesting guidelines may be required to achieve objectives for resources other than timber. Timber harvesting will be conducted in accordance with the Timber Harvest Cut Block Manual (ENR Report No. 43, 1977) and established operating and planning ground rules. An emphasis will be placed on landscape logging to ensure the aesthetic quality and recreation value of the area is maintained. Continued productivity of the sustained yield land base will be ensured through: a) intensive forest management techniques; b) reclamation of surface disturbances; c) reforestation of harvested stands according to established reforestation policy; and d) prompt implementation of approved salvage and sanitation logging. Reclamation of land use disturbances will occur expeditiously to reduce erosion and sedimentation.

Table 4

RESOURCE MANAGEMENT STRATEGY (Continued)

Broad Objectives	Broad Guidelines
Timber	
	All cutover areas will be reforested in accordance with established reforestation regulations and policy except where otherwise noted in this plan (i.e., liquidation harvesting in the White Area).
Rangeland and Agricultural Resources	
To manage rangelands to enhance the forage capacity and range condition for use by wildlife and domestic livestock.	The potential for range improvement should not be precluded by other land uses. For example, the siting of industrial roads and logging landings and the location of recreation facilities should avoid encroachment on primary range.
To maintain and improve forage production so that the range presently under disposition is capable of supporting the 1977 carrying capacities totalling 2 447 AUMs[1] in the White Area (proposed) and 14 506 AUMs in the Green Area (proposed) outside the Rocky Mountains Forest Reserve.	Updated range management plans are required for a number of grazing dispositions. The emphasis will be placed on areas with allocation, utilization and/or distribution problems and on areas which do not have current plans. Stocking rates may be revised at that time.
To maintain and improve forage production so that range allotments in the Rocky Mountains Forest Reserve are capable of supporting the 1977 preference quotas totalling 9 893 AUMs.	Range improvement (primarily to reduce aspen and brush encroachment in the Green Area) should be conducted to increase forage production. Other methods of increasing the quality and quantity of forage resources will also be examined.
To maintain and increase carrying capacities and stocking rates after existing rangelands have been fully utilized if compatible with good range management practices and other land uses.	Range improvement projects will be conducted in a manner that will optimize wildlife benefits, where possible.
To monitor and manage escaped and/or abandoned horses.	Range improvement will be conducted in a manner that is consistent with maintaining timber and recreation values, where appropriate.
To increase the level of management of equestrian use of forage resources to ensure good range condition is maintained.	The overall level of management of forage resources will be increased so as to reduce overutilization and distribution problems. Improved distribution techniques will be encouraged to make better use of the secondary range.
	The impact of escaped and/or abandoned horses along roads and on rangelands will be minimized through appropriate management practices.
	Range surveys to establish carrying capacities and current levels of use and to identify management problems are required in order to develop a plan for management of back-country range resources. The priority will be placed on areas identified with current management problems. Where appropriate, control of the utilization of the back-country forage resource will occur, generally by means of regulations under the Public Lands Act and the Forests Act.
Mineral Resources	
To provide opportunities for industry to define the extent of minerals and to develop or extract minerals where proven reserves or productive formations exist.	Mineral resource activities will be conducted in an environmentally acceptable manner that is compatible with other land uses.
To provide opportunities for industry to explore and develop minerals in previously unexplored areas and formations.	Where step-out activities are approved, they will be subject to whatever additional operating conditions will be necessary to protect the environment and character of these (largely Prime Protection) areas.
To provide for the orderly exploration and development of surface materials, including sand, gravel, clay and marl, in a manner that is compatible with environmental considerations.	Mineral dispositions entirely within Prime Protection (Zone 1), or within other areas where mineral resource activity is normally excluded, will be granted only where step-out activity or directional drilling may be considered.

[1] Animal Unit Month

Table 4

RESOURCE MANAGEMENT STRATEGY (Continued)

Mineral Resources

Broad Objectives	Broad Guidelines
	Mineral resource activity will continue to be approved following government referral procedures and according to legislation.
	Only underground coal mining is encouraged in the Critical Wildlife and General Recreation zones. However, where not otherwise prohibited in this plan, surface mining or the location of surface facilities associated with coal mining in these zones may be considered on a project-specific basis in response to a Preliminary Disclosure.
	Buffer areas which exclude surface development of coal may be required, particularly adjacent to the Prime Protection Zone, to preserve aesthetic and other resource values.
	Mine sites will be reclaimed in a manner that optimizes the value for watershed, wildlife, recreation, timber and other post-mining land uses.
	Access restrictions or exclusions will continue to be appended to notices of sale of mineral rights.
	The location and extent of sand and gravel deposits will be identified through the Aggregate Inventory Group Alberta Energy and Natural Resources) in all areas except Prime Protection (Zone 1).

Settlement

Broad Objectives	Broad Guidelines
To provide the necessary land base for settlement facilities within the plan ning area.	Sale of public land within the planning area for permanent and seasonal residential use may be considered. Parcels of public land may also be sold for site and capital-intensive development where site-specific conditions are met.
To provide for the orderly delivery, timing, size and location of community development.	

Settlement

Broad Objectives	Broad Guidelines
To identify potential sites for public and private recreational facility development within permitted areas, recognizing limitations and identifying the areas with the highest potential for development.	The adverse impacts of major resource developments on communities will be mitigated. Within that portion of the planning area to which the Planning Act applies (roughly the portion outside the Forest Reserve, under the Municipal District of Clearwater No. 99 Incorporation Act), any settlement facilities will be subject to review and approval through instruments under the Planning Act, such as the Red Deer Regional Planning Commission's Regional Plan, when it comes into effect.
	Liaison will be maintained between Alberta Energy and Natural Resources, Alberta Municipal Affairs, the Red Deer Regional Planning Commission and MD 99 to ensure that appropriate concerns are expressed when settlement is proposed or underway.
	Appropriate policy development and site analysis will be conducted by Alberta Energy and Natural Resources to provide for public and private recreational facility development on public lands. Such developments include cottage subdivisions, lodges and resort complexes. The preferred sequence of making lands available for development is: - patent lands (first); - White Area; - Multiple Use outside of the Rocky Mountain Forest Reserve; - Multiple Use and Facility Zones where adjacent to existing developments and - General Recreation, other Multiple Use and other Facility Zones.

Table 4

RESOURCE MANAGEMENT STRATEGY (Continued)

Access

Broad Objectives	Broad Guidelines
To co-ordinate the development of access and rights-of-way to minimize the impact on other resources in the planning area and on adjacent areas (including Banff and Jasper National Parks and Siffleur and Whitegoat Wilderness Areas).	Motorized vehicle access into the Prime Protection Zone will either be restricted by regulations under the Forests Act and other legislation, physically eliminated or discouraged.
To co-ordinate the development of access to minimize duplication of effort and expense and to provide access appropriate to the requirements of the various resource users.	Where recreational helicopter access is contributing to overuse of an area or to wildlife disturbance, co-operative management will be undertaken in conjunction with the operators.
To provide and regulate appropriate levels and types of access.	Designated vehicle routes will be designated based on a positive pilot study.
	Public access to Crown land and water will be retained wherever possible. Exceptions will be determined on the basis of type of disposition, public safety and sound resource management practices.
	Areas proposed for access control under forest land use or other regulations are indicated on the plan maps as "access control areas".
	The success of access management regulations will be monitored and regulations adjusted as appropriate.

3.1 Zoning and Resource Management Areas

The plan relies upon two schemes to express objectives and other direction which apply to specific parts of the planning area. These are the revisions to Eastern Slopes Zoning (section 3.2) and the concept of Resource Management Areas (section 3.3).

3.2 Revised Eastern Slopes Zoning

The Nordegg-Red Deer River plan uses the same set of eight zones defined in the Regional Plan for the Eastern Slopes (see section 2.4). The intents for the zones are as contained in the regional plan and summarized in Table 2. The mapped zoning has been revised and refined from that found in the regional plan (whose maps are unchanged from the 1977 Eastern Slopes Policy), based on more detailed information and more specific objectives, and in order to explicitly exclude patent land. The revised mapping of the zones is herein referred to as the "revised Eastern Slopes zoning".

The delineation of these zones is closely linked to the site-specific capability of the land to support different land uses. For this reason, ecological land classification and other resource information has been relied upon extensively in establishing the zoning pattern. Zoning depends as well on agency objectives, and current and expected levels of demand. The revised (1984) zone lines are based on data accurate at a scale of 1:100 000 and are related to spatially defined resource management objectives, as supplied by the various agencies.

Note that these zones may be revised at any time, but particularly associated with major plan revisions. Zone revision is considered to be a major amendment, and shall be carried out according to the procedures of section 5. Zones may be revised based on better information, changes to broad policy or change to specific objectives for an area.

Guidelines for individual zones are contained in Table 4 if they apply throughout the planning area, and in chapter 4 if they apply only to specific Resource Management Areas.

3.3 Resource Management Areas

A resource management area (RMA) is a geographical unit which has a similar resource management intent throughout. RMAs are used to focus the decision-making process on a specific area. The direction contained in RMA intents, objectives and guidelines, by dealing with a significant geographical area, can address non-site specific issues in addition to those issues dealt with by zoning (e.g., access constraints to maintain an area for wilderness recreation, impacts of infrastructure in coal mine development). Intents, objectives and guidelines which are specific to RMAs (i.e. do not apply over the entire planning area) are found in chapter 4.

3.4 General Summary and Implications

The Nordegg-Red Deer River Sub-Regional Plan provides for optimal economic and social benefits with a minimal number of associated costs. The integrity and intents of the Eastern Slopes Policy (and related allocative policies) have been upheld. The spectrum of protection, resource management and development zoning has been revised in a rational and justifiable manner. Along with the removal of patent lands from the refined zoning, the Nordegg-Red Deer River plan bridges the gap between the intent of the Eastern Slopes Policy and the action requirements of the land and resource managers.

The shift in focus from intent to action has been predicated on a number of factors:

1. overall rationalization of resource values,
2. application of current resource and use information,
3. knowledge of present resource management practices,
4. preference for renewable over non-renewable activities, and
5. preference for multiple use over single use activities.

Beyond the single uses and non-renewable uses identified in the plan, proposals for such uses will be guided by the revised land use zoning and related guidelines.

The allocation of the limited land base and resources at this subregional scale improves the context for operational decisionmaking, including operational/management planning, private sector planning and referrals, as well as on-going procedures and discussions. The

viability of public programs and commercial operations currently existing or approved within the planning area will also be maintained or improved. All of these benefits can be achieved providing a limited number of conditions are met.

The management requirements for the objectives of this plan to be achieved are as follows:

1. Maintenance of positive, interactive communications between and among the resource managers, private sector interests and other public groups,

2. Maintenance of the land base required for desired opportunities (e.g., wildlife habitat).

3. Improvements to the resource managers' ability to control and direct access to the land base through legislative mechanisms, and

4. Willingness to implement this plan and related decisions.

Assurances have been provided by the various participants that these conditions can and will be met. More specific benefits and management requirements are discussed in chapter 4 (following the table of objectives and guidelines for each RMA).

4 SPECIFIC DIRECTION FOR RESOURCE MANAGEMENT AREAS

The Nordegg-Red Deer River planning area has been divided into 13 RMAs, each with an area of about 800 km^2 (300 sq. mi.) on average. There are from one to six different zones contained in each RMA (see Table 5).

The RMAs in the Nordegg-Red Deer River planning area (Figure 14) have been structured on the basis of the revised zoning (eliminating overlapping fragments of zones and subsequent difficulties in describing the unit's resource values). Generally RMAs A, F, G, I, J and L have a protection emphasis; the remaining seven RMAs have a resource management emphasis with elements of protection and development.

The remainder of the chapter discusses each RMA. The structure of the RMA discussion is as follows: description; resource management intent; revised Eastern Slopes zoning (including a 1:250 000 map); resource management objectives and resource management guidelines for each resource, and the implications including recommended resource management activities resulting from the plan's direction. Maps showing the revised zoning over the entire planning area are enclosed in the map pocket at the back of the plan.

The management intent statement presents the general theme for the RMA. The revised zoning, objectives and guidelines provide more specific levels of direction. The statements of objectives and guidelines indicate the desirable conditions to be achieved and appropriate actions or procedure to achieve the desired conditions.

The implications for an RMA include benefits to be maintained (e.g. commercial trail riding opportunities) and the management mechanism to be utilized (e.g., reservations, regulations, management). An allocation may have consequences for more than one resource (e.g., adjustments to the Green Area/White Area boundary). Although resource benefits were the motivation for the zone revisions and related recommendations, other opportunities may have been lost (e.g., through resource sterilization), constrained, or identified as a non-conforming use (e.g. motorized vehicles in the Prime Protection Zone).

TABLE 5

RESOURCE MANAGEMENT AREAS

Map Sheet	Resource Management Area		Revised Eastern Slopes Zoning
Red Deer-James	A	Red Deer-Panther	1, 2, 3, 4
	B	Red Deer-Willson	2, 4, 5, 8
	C	Red Deer-Raven	2, 4, 5, 6, 7, 8
Ram-Clearwater	D	Clearwater-Tay	2, 3, 5, 7
	E	Ram-Clearwater	2, 4, 5, 7
	F	Headwaters	1, 4
Chungo-Cline-Nordegg	G	Whiterabbit Creek	1
	H	Kootenay Plains	1, 2, 3, 4, 8
	I	Cline River	1
	J	Bighorn River	1
	K	Nordegg	2, 3, 4, 5, 7, 8
	L	Blackstone-Wapiabi	1, 2
	M	Brown Creek	2, 5

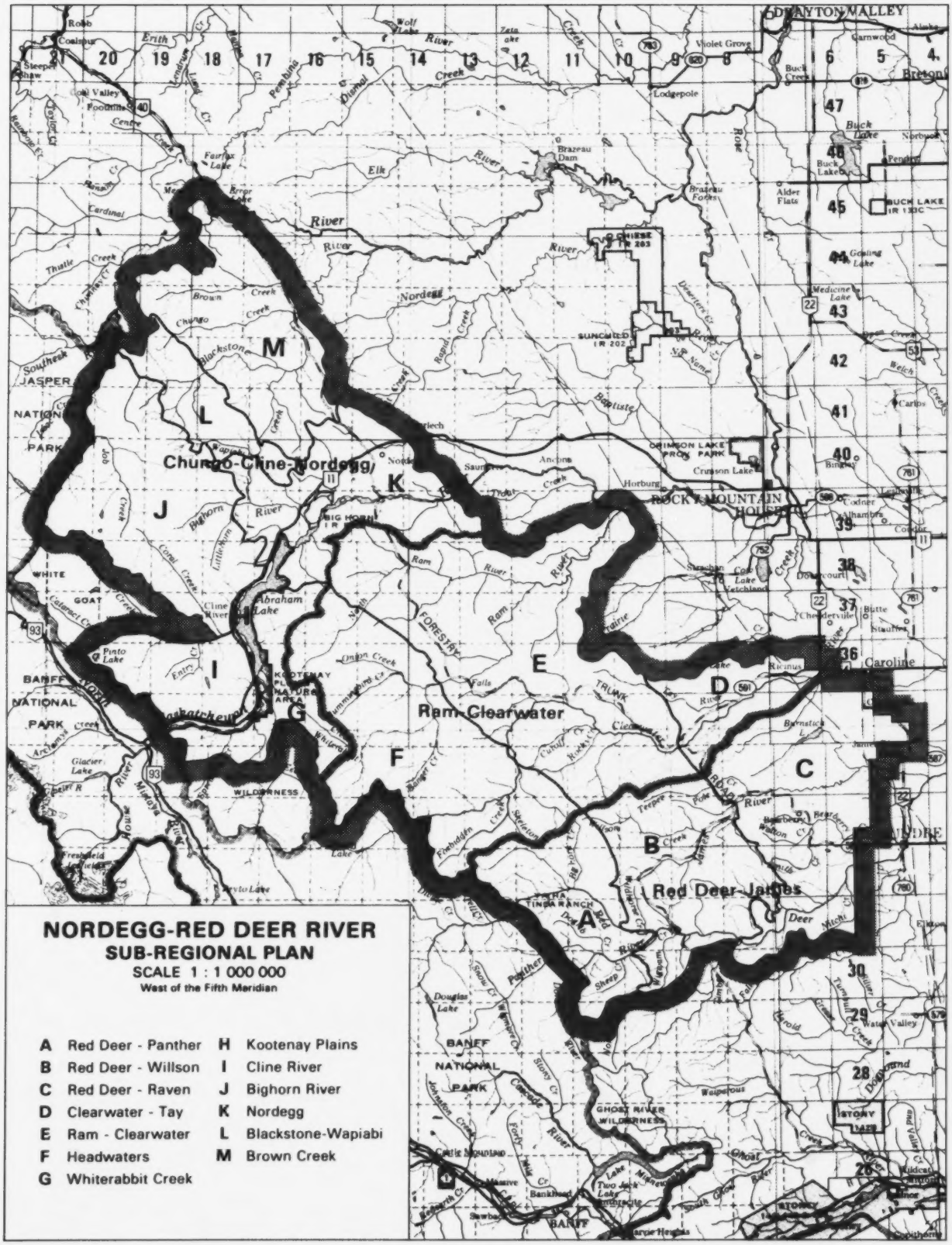


Figure 14. RESOURCE MANAGEMENT AREAS: KEY MAP

To facilitate the location of objectives and guidelines related to a specific resource sector, a cross-reference matrix has been compiled. Table 6 lists the page numbers of the objectives and guidelines to be applied to the overall planning area and those objectives and guidelines to be applied to the individual RMAs.

The broad resource management objectives and guidelines (chapter 3) generally apply to all RMAs. The objectives and guidelines specific to RMAs are contained in tables in the following sections. Where RMA guidelines prohibit an activity within a Zone which is "compatible" or "permitted" in the regional Table of Compatible Activities (Table 3), the mapped zone will be flagged with the RMA label, to refer the reader to the text for the specific prohibition (e.g., if coal mining is excluded from Zone 2 in RMA L, the zone will be mapped "2L"). In addition, the RMA guideline(s) which specify the restriction will be flagged in the tables (7.1 to 7.13) by means of an asterisk (*) and the subscripted zone affected ("Zone 2L" in the example).

TABLE 6
INDEX TO RESOURCE MANAGEMENT OBJECTIVES AND GUIDELINES

RESOURCE VALUES

BROAD OBJECTIVES AND GUIDELINES	34	34	35	35	36	37	37	37	38	38	39	40
SPECIFIC OBJECTIVES AND GUIDELINES												
RMA A	54	54	54	55	55	55	55	56	56	56	56	56
RMA B	63	63	63	63	64	--	64	64	65	65	65	65
RMA C	73	73	73	74	74	74	74	75	75	75	75	76
RMA D	83	83	83	83	83	84	84	84	84	84	84	84
RMA E	93	93	94	94	95	95	95	95	95	96	96	96
RMA F	103	103	103	103	104	104	104	104	104	104	104	105
RMA G	111	111	111	111	111	111	--	112	112	112	--	112
RMA H	118	118	118	118	119	119	119	119	119	120	120	120
RMA I	126	126	126	126	126	127	--	127	127	127	--	127
RMA J	133	133	133	133	134	--	--	134	134	134	--	134
RMA K	141	141	141	141	142	--	142	142	142	142	143	143
RMA L	149	149	149	149	150	--	150	150	150	150	--	151
RMA M	157	157	157	157	158	--	158	158	158	158	--	158

4.1 Resource Management Area A: Red Deer-Panther

Description

This RMA consists of alpine, subalpine, montane and boreal uplands ecoregions. The main waterbodies within this RMA are the Red Deer, Panther and Dormer rivers and Eagle Lake. The streams in this unit are highly productive sources of water. The potential for stream contact is high due to high stream density. However, the generally coarse nature of the surficial deposits provides for relatively stable channels and terrain at lower elevations. Alpine and subalpine areas have limited soil development and are sensitive to disturbance. Low lying pockets of fine textured soils and impeded drainage also constrain the amount and type of development which can occur at lower elevations.

This unit contains extensive elk winter ranges that rank among the top three to five in Alberta. Herds in excess of 400 head are commonly found wintering here. Bighorn sheep are also plentiful in this RMA, while mule deer and moose are common, but are below their carrying capacity. Prime grizzly bear habitat is located in this unit and bear numbers could be increased. The wolf population in this area is high at present and is contributing to depression of some ungulate populations. Caribou were likely present in this area in the past; populations should be re-established in headwater areas where mature timber stands are not available for logging. Lack of public access control in the past has allowed excessive recreational vehicle use in this area. Reduction and control of motorized travel in this unit will greatly assist the increase of wildlife densities.

The portion of the Red Deer River which falls within this RMA has excellent fishery potential. Most of the tributary streams of the Red Deer River are characteristically torrential and have limited fishery potential. Factors such as the short growing season, cold water, lack of nutrients and high gradients account for the relatively low productivity of this system. Bull trout and Rocky Mountain whitefish are the predominant fish species found in this unit, being restricted to the lower reaches of most tributary streams. The most significant streams are the Red Deer, Dormer and Panther rivers. Cutthroat trout have been established in a number of high mountain lakes in this RMA to expand angling opportunities.

The high visual esthetics, topography and relatively low level of land use contribute to the wildland values of this RMA. Parts of the unit are suitable for non-motorized recreation. Pockets of fine textured soils and impeded drainage limit trail development, particularly for motorized vehicle use. There is a high demand for equestrian facilities and a commercial trail riding area. There is also moderate demand for staging facilities from river users. The Panther and Red Deer rivers provide opportunities for canoeing, kayaking and rafting by commercial operators and the general public. The diversity of landscapes and wildlife present within this RMA attracts naturalists, trail riders and hunters as well as the general tourist. Bighorn Falls, an attractive local feature, is within Ya-Ha-Tinda Ranch.

All four of the biogeographic zones present within the planning area occur within this RMA as well as the ecotones grading between these zones. The federally owned Ya-Ha-Tinda Ranch is a well known extensive montane grassland feature. The area bounded by the Red Deer and Panther rivers and the Front Ranges is a diverse foothills and subalpine area known as Panther Corners. The remainder of this RMA also contains significant ecological resources representative of the foothills, montane, alpine and subalpine biogeographic zones.

The ecologically significant area (ESA) in the Eagle Creek area features intermountain grassland of a different type than found further north in Kootenay Plains.

The ESA along Scalp Creek contains permafrost and thermocarst features of geomorphic interest.

The large number of prehistoric sites identified in the Ya-Ha Tinda Ranch suggest that the area has seen extensive occupation by aboriginal groups for at least the last 8 000 years. The potential for the discovery of additional sites in this RMA is considered to be high, particularily along the terraces of the Red Deer and Panther Rivers. Unconfirmed sites have been reported in the James Pass/Eagle Lake area.

Two fossil occurrences are known in the RMA, both in Ya-Ha-Tinda Ranch on Scalp and Bighorn creeks. A high probability of other palaeontological resources in the area is suggested.

Timber production potential in this unit is limited because of climatic and topographic conditions. None of this RMA is included in the Brazeau Timber Development Area. The Bighorn Creek area (north of

Ya-Ha-Tinda Ranch) and the area south of the Red Deer River contain timber of commercial value. Timber harvesting will be designed to enhance wildlife habitat while protecting terrain and recreational values.

Terrain, vegetation and climate limit forage production in this unit. Range management is limited to watershed protection and to maintaining the forage capacity and range condition for wildlife and for horse use. The federal government uses the Ya-Ha-Tinda Ranch to winter horses from Banff National Park.

The mineral resources of this RMA include the Costigan coal field and the Sheep Creek coal deposit containing an estimated total of 250 million tonnes of coal, and probable reserves of two billion m^3 of natural gas. The Coal Policy (1976) does not allow coal development to occur within this RMA. The Panther River gas field is one of four areas along the Eastern Slopes where existing commitments associated with proven reserves (before July 1977) may provide the opportunity for step-out assessment and development of the natural gas resource. Gas of the Panther River field contains high percentages of hydrogen sulphide.

The main access into this RMA is provided by an all weather road to Ya-Ha-Tinda Ranch which originates at Mountain Aire Lodge on the Forestry Trunk Road. Other informal access routes have occurred as a consequence of industrial exploration and development. Previous efforts to reclaim access into sensitive areas (e.g., Panther Corners) by creating physical impediments have been variable in their success. The Scalp Creek trail, which crosses over the watershed divide to the Forty Mile Flats area, RMA F (Headwaters), is mainly within the sub-alpine ecoregion.

Resource Management Intent

The resource management intent for the Red Deer-Panther RMA is:

> To protect the environmentally sensitive watershed, wildlife, ecological and wildland[1] resources while providing the opportunity for high-quality, extensive back-country recreation experiences, particularly along the Red Deer and Panther rivers.

[1]wildland - a wilderness or back-country setting having the following characteristics: degree of solitude, low evidence of man, natural landscape.

Revised Eastern Slopes Zoning

Figure 15 illustrates the revised Eastern Slopes zoning. (For comparison to the 1977 zoning, see Figure 9.) The revised zoning includes Prime Protection (Zone 1), Critical Wildlife (Zone 2), Special Use (Zone 3) and General Recreation (Zone 4). The justifications for the zoning revisions include refined ecological land classification (ELC) data, other resource data and the various resource management objectives to be attained.

Resource Management Objectives and Guidelines

Table 7.1 contains the objectives and guidelines specific to the Red Deer-Panther RMA.

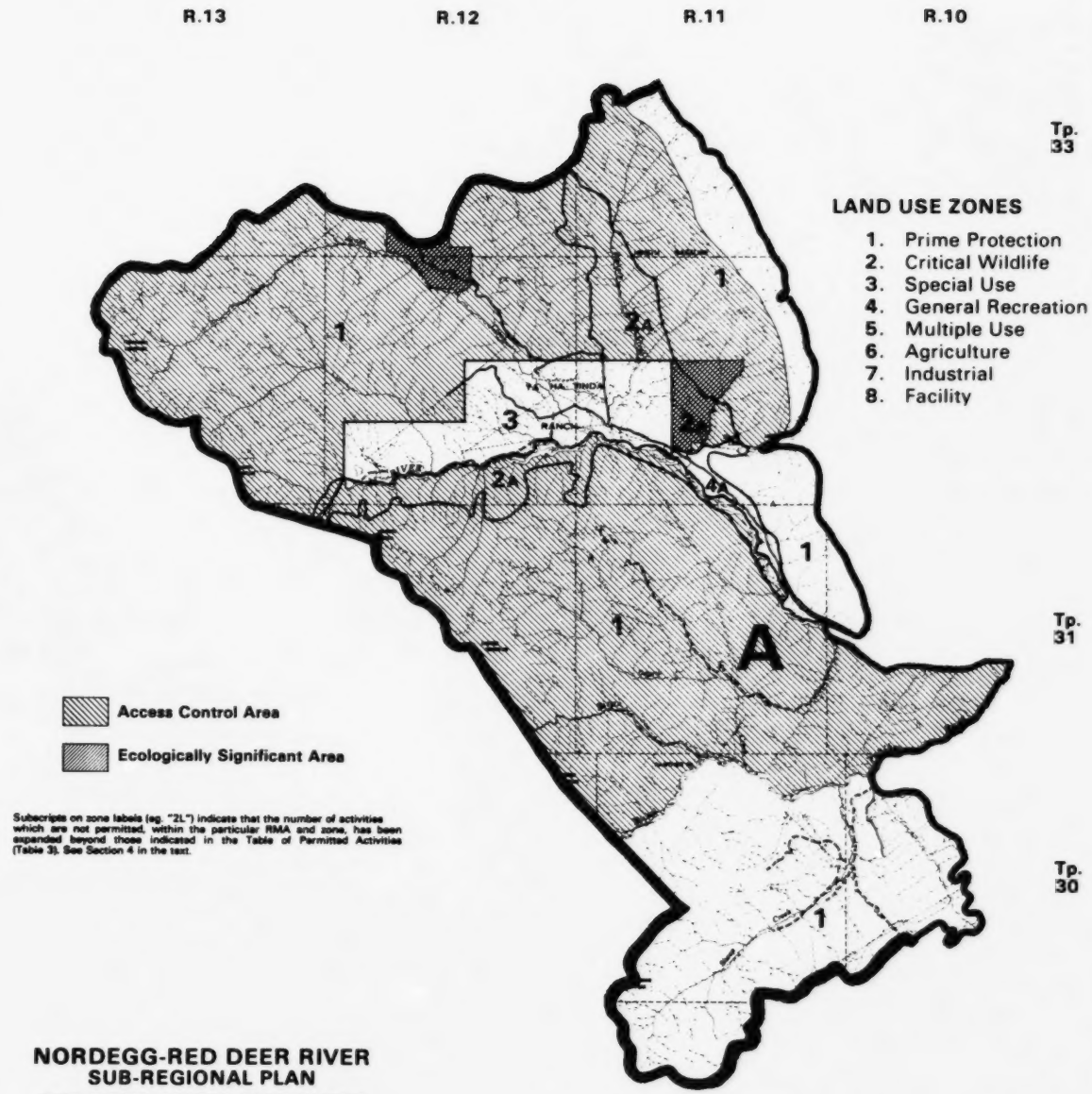

R.13
R.12
R.11
R.10
Tp. 33
Tp. 31
Tp. 30
LAND USE ZONES
1. Prime Protection
2. Critical Wildlife
3. Special Use
4. General Recreation
5. Multiple Use
6. Agriculture
7. Industrial
8. Facility
Access Control Area
Ecologically Significant Area
Subscripts on zone labels (eg. "2L") indicate that the number of activities which are not permitted, within the particular RMA and zone, has been expanded beyond those indicated in the Table of Permitted Activities (Table 3). See Section 4 in the text.
NORDEGG-RED DEER RIVER
SUB-REGIONAL PLAN
RED DEER-JAMES MAP SHEET
RED DEER-PANTHER
RESOURCE MANAGEMENT AREA
SCALE 1 : 250 000
West of the Fifth Meridian

Figure 15. RESOURCE MANAGEMENT AREA A: RED DEER-PANTHER

Table 7.1

RMA A (RED DEER-PANTHER): OBJECTIVES AND GUIDELINES

Watershed

Resource Management Objectives	Resource Management Guidelines
To protect sensitive areas from surface disturbance.	Vehicle access routes and land development should avoid sensitive areas.
To protect water quality, quantity and timing of runoff.	Existing access in the Prime Protection Zone (particularly in the Panther Corners and Scalp Creek areas) will be reclaimed and limited to non-motorized access.
To ensure reclamation of linear disturbances in the Prime Protection Zone.	Forest land use zone or equivalent regulations are proposed to control mechanized access and to regulate recreational horse use in the Prime Protection and Critical Wildlife zones in this RMA.

Wildlife

Resource Management Objectives	Resource Management Guidelines
To increase ungulate populations in this RMA to at least 50 moose, 1000 elk, 400 mule deer, 50 goat and 30 caribou.	Regulation of animal densities will be done by commercial trapping and recreational hunting.
To maintain the bighorn sheep population at about 400 and white-tailed deer at about 100.	The remotest portion of this unit will be used as release sites for problem grizzly bears.
To achieve stable populations of about 20 black bear, 10 cougar, five wolves and 50 coyotes.	Recreational horse use will be controlled to minimize competition with wildlife.
To increase grizzly bears to about 20 and wolverine to about 15.	The feasibility of reintroducing caribou into the Scalp Creek drainage will be investigated. Actual relocation of caribou will also depend on availability of funds and stock.
	Elk will be relocated into the Sheep Creek drainage when stock becomes available.
	As demand for ungulates increases, range improvement programs will be undertaken to increase the winter elk carrying capacity, particularly in the grassland shrub communities.

Wildlife

Resource Management Objectives	Resource Management Guidelines
	Wolves will be kept at low densities to help maximize ungulate densities.
	Plans will be drafted by the involved agencies to ensure that all timber harvesting results in improvements to the critical wildlife habitat.
	Forest land use zone or equivalent regulations are proposed to control motorized vehicles and recreational horse use which are impacting fragile grassland communities and wildlife populations. The areas proposed for regulation are indicated on the map as "access control areas".

Fisheries

To maintain high water quality and to protect habitat areas which are important for specific fish populations: a) Lower reaches of Scalp and Bighorn Creeks, as well as unnamed tributaries to the Red Deer River, which are used for rearing and spawning by bull trout. b) Spawning, rearing and overwintering areas for bull trout and Rocky Mountain whitefish in the Panther, Dormer and Red Deer Rivers. c) Spawning and rearing areas for bull trout and brook trout in the lower reaches of Dogrib Creek.	Additional fisheries should be developed to increase species diversity as well as to reduce angling pressure on native populations. The cutthroat trout introduction into the upper Red Deer River will be monitored.
To maintain high mountain lake fisheries thereby providing wilderness fishing experiences in: a) Eagle Lake; b) Dormer Lake; c) Ice Lake; d) Unnamed Lake (Barrier Lake); and e) Others as identified.	Erosion problems along certain access roads are contributing to deterioration of aquatic habitats. Fish and Wildlife Division in cooperation with the Alberta Forest Service should undertake an examination of problem sites and develop plans for reclamation. Erosion problems along the Scalp Creek road should be corrected to prevent further sedimentation in this location. Further fisheries inventory work involving fish population estimates,

Table 7.1

RMA A (RED DEER-PANTHER): OBJECTIVES AND GUIDELINES (Continued)

Resource Management Objectives	Resource Management Guidelines
Fisheries	
To enhance existing lake fisheries and/or create new ones to provide additional angling opportunities.	water quality and habitat evaluations (specifically identifying key spawning, rearing and overwintering areas) will be undertaken to formulate future fisheries management programs.
To identify and maintain migratory corridors for specific fish species, especially along the Red Deer River.	Angling regulations will have to be regularly evaluated in relation to angler use to provide for long term survival of naturally reproducing resident sportfish, particularly bull trout.
To protect and maintain the bull trout populations in the headwaters portions of this RMA.	
Recreation	
To provide a high quality recreational experience for river users.	The Panther Corners area has been identified as a priority for equestrian trail and trailhead development.
To provide opportunities for extensive non-motorized recreation activities and related facilities, including links to Banff National Park and the Ram-Clearwater area.	The following areas have high recreation potential. Future recreational development may be directed to these areas: a) the Dormer Lake area for backcountry campsite development associated with the proposed Panther Corners equestrial trails; and b) a location adjacent to Banff National Park, west of Ya-Ha-Tinda Ranch and a location in the Sheep Creek area for equestrian trailheads.
To upgrade the existing random access to the Red Deer River.	Non-motorized trail development will be limited in the Prime Protection Zone and will recognize terrain limitations.
	Access to Eagle Lake will remain limited to non-motorized trails.
	Any industrial access required in the RMA (due to existing commitments or step-out drilling) will be developed in a manner that will prevent off-highway vehicle use and will be reclaimed upon abandonment.
Recreation	
	* (Zone 2A) No serviced camping will be permitted in the Critical Wildlife Zone, except for one area lying on the north side of the Red Deer River and west of Ya-Ha-Tinda Ranch, that is currently used for staging into Banff National Park.
Tourism	
To enhance tourism experiences by providing opportunities for viewing wildlife in a natural setting.	To facilitate the viewing of ungulates in the Ya-Ha-Tinda Ranch and in nearby locations, the best times and least sensitive location will be determined. Interpretive facilities may be required.
To ensure access to the Red Deer River for commercial operations related to canoeing, kayaking and river rafting, as well as scenic enjoyment.	Access and overnight areas for water-based activities will be shared in this RMA by commercial operators and the general public. Directional signs should be provided to indicate the location of access points.
To provide opportunities for commercial trail riding operations in the area, particularly along the Dormer and Panther rivers.	
To maintain vehicle access to Bighorn Falls.	Vehicle access to Bighorn Falls should be maintained by well gravelled roads with proper directional signs and with parking provided near the Falls.
	Accommodation services in this RMA are limited to campground and base camp facilities.
Ecological and Historical Resources	
To protect ecological resource values within the RMA.	Access restrictions under the proposed forest land use zone or equivalent regulations will protect ecological resources within this RMA.

Table 7.1

RMA A (RED DEER-PANTHER): OBJECTIVES AND GUIDELINES (Continued)

Ecological and Historical Resources

Resource Management Objectives	Resource Management Guidelines
	The Archaeological Survey of Alberta, Resource Management Section will participate in the land use referral process to review proposed developments in the following areas of the RMAs deemed to have historical resource potential: a) the Red Deer and Panther rivers and their tributaries; and Bighorn Creek and its tributaries; and b) for the following areas, Alberta Culture will participate in referrals on projects involving development of a quarter section or more land: lands adjacent to Eagle Lake. Other areas of interest are in the Prime Protection Zone.

Timber

To manage the forest along Bighorn Creek and the Red Deer River for improved wildlife and timber values.	Seasonal restrictions will be required to harvest timber along Bighorn Creek and the Red Deer River to maintain watershed, recreation and wildlife values.
To develop and implement a timber harvesting-wildlife habitat improvement plan for the area north of the Ya-Ha-Tinda Ranch (along Bighorn Creek) and the area south of the Red Deer River.	Sanitation and salvage cutting may be utilized to promote a healthy forest, consistent with wildlife objectives. A level of harvest will be established in conjunction with Fish and Wildlife Division for land and resource management within this RMA. Timber harvesting south of the Red Deer River and along Bighorn Creek will be limited to wildlife habitat enhancement, realizing economic gains where possible.

Range

Resource Management Objectives	Resource Management Guidelines
To maintain forage resources and range condition.	Restrictions on the amount and distribution of equestrian use will be applied as necessary through the Public Lands Act and proposed forest land use zone or equivalent regulations. These may include packing in feed.

Minerals

To allow industry to assess and develop the natural gas reserves within the productive geological structures of the Panther River gas field.	*(Zones 2A, 4A) Except for existing commitments and step-out activities, exploration and development of petroleum and natural gas will not be permitted. *(Zones 2A, 4A) Exploration and development of coal and other minerals will not be permitted.

Settlement

	* (Zone 4A) No residential development is permitted (specifically, not along the Red Deer River in the General Recreation Zone).

Access

To restrict motorized access to authorized government and commercial users.	Forest land use zone or equivalent regulations are proposed to manage access, in a manner consistent with the above guidelines for watershed, wildlife, range, fisheries, tourism, recreation and ecological resources.

Summary and Implications

The Red Deer-Panther RMA contains resource values capable of providing substantial economic and social benefits. The benefits to be realized include: production of water; wildlife hunting and viewing; commercial timber harvesting (associated with wildlife habitat improvements); trapping and fishing; commercial, public and private recreation (trail riding, water-based activities, hiking, back-country camping, day use, and enjoyment of scenic and ecological features, including Bighorn Falls); and potential production of natural gas.

Management required for this RMA includes: forest land use zone or equivalent regulations; reclamation of access points, trails and stream crossings; designation of a habitat management area for wildlife habitat enhancement; stocking of elk, caribou and grizzly bear; equestrian trail and trail head development and maintenance; back-country campsite development; water access development; negotiation with Parks Canada for wildlife and nature viewing opportunities; joint commercial timber harvesting - wildlife habitat enhancement projects; and assessment of step-out applications for natural gas activities.

The significant objectives within this RMA cannot be met without regulating motorized access through forest land use zone regulations and/or other mechanisms. Motorized recreational uses will be restricted to the Ya-Ha-Tinda Ranch road. The factors to determine the priority for reclamation of a site include other resource values being affected, the purpose and tenure of the access, and public safety. Viability of commercial operations and public safety are also major considerations with the proposed water access development.

One effect of the revised Eastern Slopes zoning will be the boundary adjustment of the McCue Creek Grazing Allotment. The area defined as Prime Protection (Zone 1) will be withdrawn from the allotment. No loss of primary range or Animal Unit Months (AUMs) is associated with this adjustment.

With the exception of step-out wells and existing commitments, petroleum and natural gas activity is excluded from the Critical Wildlife Zone and the General Recreation Zone within this RMA. No leases are affected. This plan confirms that exploration and development of coal and other mineral resources are not appropriate activities within this RMA.

4.2 Resource Management Area B: Red Deer-Willson

Description

This RMA consists of subalpine, boreal uplands and boreal foothills ecoregions. The main waterbodies are the Red Deer and James rivers as well as numerous streams, including Yara, Wigwam, Wildhorse, Willson, Williams, Windfall, Teepee Pole, Sawtooth, South James, Parker and Brown creeks.

As the majority of watercourses in this unit flow through colluvial and till deposits, the watersheds are moderately stable. Tributaries to the Red Deer River are critical for maintaining waterflow and quality. A large number of streams are being adversely impacted by cattle and seismic activity. Beaver activity on some tributary streams has produced alluvial deposits causing channel instability and areas of poor drainage, particularly on Williams Creek. Terrain stability is also a problem in the Williams Creek drainage as the tills have a high silt content.

Stream density in RMA B is relatively high, and therefore potential for stream contact by cutlines and industrial roads is also high. This is a concern where channels are unstable and in subalpine areas.

Water yield and hydrologic response in this unit are moderate.

This unit contains important populations of moose, elk, deer and grouse which are heavily used. All populations of these species could be increased if hunting were better regulated, disturbances were reduced, and more forage provided. The presence of two major roads (Forestry Trunk Road, Red Deer River road) through the better ranges, unregulated native hunting, unregulated access, and heavy grazing by cattle and escaped and/or abandoned horses may make these increases difficult to achieve. Bear and wolf habitats in this area are excellent, but the numbers of these species, at least on the eastern edge of the RMA, will be kept relatively low to help avoid depredation problems. Well planned and well conducted timber harvest and management of access in this area will benefit most of the wildlife species present.

RMA B: Red Deer-Willson

This RMA contains a widespread brook trout population with scattered populations of Rocky Mountain whitefish, bull and brown trout. The Red Deer and James rivers provide habitat for brook trout, brown trout and Rocky Mountain whitefish. Tributaries to the James River provide spawning and rearing habitat for these sportfish species. Tributaries to the Red Deer River generally have low fish populations but are critical to the maintenance of water flow and quality. Domestic grazing and resource development on stream banks are causing habitat deterioration on a number of stream fisheries.

Recreational use in this unit is high, focussing along the Red Deer and James rivers and major roads. The Red Deer River supports the majority of designated camping and on-river use (i.e., canoeing, kayaking and rafting by commercial users and the general public). There is a high demand from river users for more developed access points and group camps. Commercial operators are requesting leased sites in the vicinity of the Burnt Timber - Red Deer River confluence.

Random camping is high in the James River/Willson Creek area where there is only one designated campground. Hunting and fishing are popular thoughout. Klein Lake in the southwest part of the RMA is a popular random camping area and destination site for hikers and motorized vehicles.

Commercial operations within the RMA include Mountain Aire Lodge, which provides accommodation, food and automotive services, and acts as a base for trail riding, snowmobiling, rafting, canoeing and kayaking.

Archaeological studies in this RMA have been limited to infrequent highway and recreational area assessments. The few recorded sites in this area suggest that site density may be as great here as that observed farther to the west. The Panther and James River terraces are considered to have high potential for the discovery of historical resource sites. Similarily, sites have been recorded on Wilson Creek, indicating prehistoric usage of the smaller tributaries in the RMA. Finally, the shores of small lakes, wetlands and high exposed benchlands also have high potential for prehistoric site occurrences.

There is one known fossil occurrence, on Wilson Creek, with a high probability of other significant palaeontological resources in the area.

RMA B: Red Deer-Willson

Virtually all of this RMA is included in the Brazeau Timber Development Area (excepting the land south of the Red Deer River). Two commercial quota holders harvest timber within this RMA. Part of the RMA requires silvicultural enhancement to improve growing potential, notably the Willson Creek drainage which has extensive areas of dense stagnant pine and the Windfall Creek watershed which contains large areas of blowdown.

Six grazing allotments are located primarily in this RMA. These are the Bread Creek, Willson Creek, Upper James, Williams Creek, Upper Red Deer and McCue Creek allotments. The Upper Deer Creek distribution unit of the Lower Red Deer Grazing Allotment is also in this unit. The 1977 preference quota was 4 095 AUMs.

Shrub encroachment and grazing by escaped and/or abandoned horses have had a negative impact on maintenance of stocking rates. Recent counts indicate that more than 200 of these horses graze within this unit. Half these horses are in the Williams - Brown Creek drainage. The actual use of Williams Creek Grazing Allotment by cattle has been about two thirds of the set stocking rate.

The potential for range improvement is high, particularly in Williams Creek, Upper Red Deer and McCue Creek grazing allotments. Range improvement potential also exists to a lesser extent in Willson Creek, Upper James and Lower Red Deer grazing allotments. There is a total of approximately 1 562 ha (3 860 a.) with potential for range improvement. Assuming 1.5 acres per AUM, a total of 2 500 additional AUMs could be created with range improvement.

The main mineral resource in this unit is natural gas. There are parts of five designated natural gas fields, the Ricinus, Limestone, Wildhorse Creek, Burnt Timber and Panther River fields, with reserves of approximately 19 billion m^3. Natural gas production was one billion m^3 in 1984. Petroleum and natural gas dispositions presently cover 60 per cent of the RMA. Gas industry infrastructure includes numerous wells, of which several are capped. This is the dominant RMA in the planning area for production and reserves of natural gas. Several high sulphur content wells and large sulphur reserves are associated with three of the natural gas fields. This area is one of several RMAs where no coal reserves have been designated by the ERCB, but where there is high potential for delineation of substantial coal resources.

Access into the RMA is provided by the Forestry Trunk Road and Secondary Roads 584 and 922. Informal access exists throughout the unit because of the extensive industrial activity.

Resource Management Intent

The general resource management intent for the Red Deer-Willson RMA is:

> To provide for a full range of multiple use activities regulated to prevent adverse environmental impacts on watershed, wildlife resources and, in particular, on recreational values along the Red Deer River.

Revised Eastern Slopes Zoning

Figure 16 presents the revised Eastern Slopes zoning. (For comparison to the 1977 zoning, see Figure 9.) The revised zoning includes Critical Wildlife (Zone 2), General Recreation (Zone 4), Multiple Use (Zone 5) and Facility (Zone 8). The Facility Zone contains the Mountain Aire Lodge disposition. The General Recreation Zone corresponds to the Red Deer and Panther River valleys. The Critical Wildlife Zone reflects fisheries and wildlife values, particularly winter range for ungulates; wolverine, grizzly bear, cougar, wolf, coyote and other furbearers are also significant in this RMA. The Multiple Use Zone reflects watershed, timber and grazing values and refinements to other zones.

Resource Management Objectives and Guidelines

The revised zoning, as discussed above, provides a summary of the specific resource management objectives to be attained. These objectives and related, specific guidelines are presented in Table 7.2.

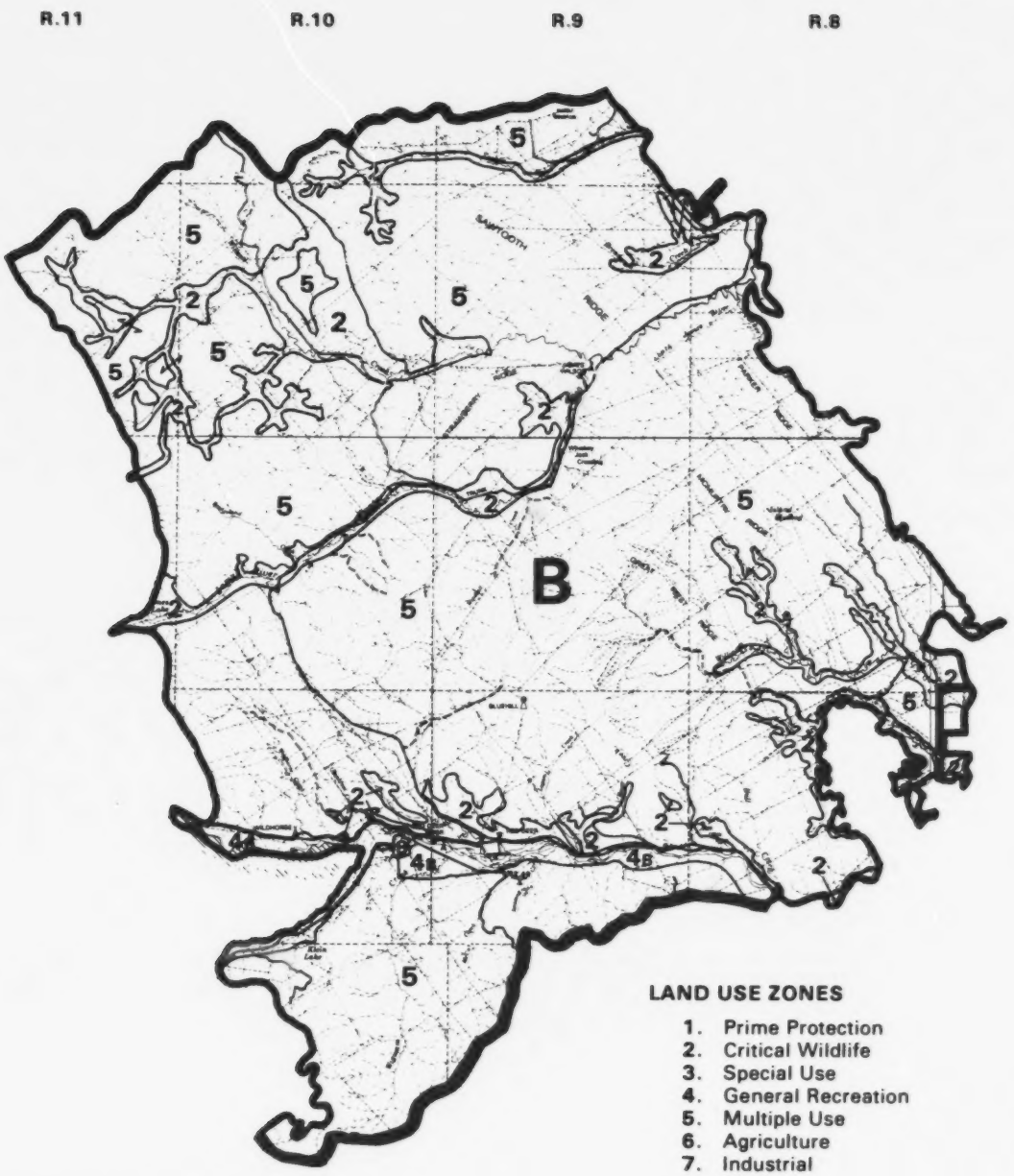


Figure 16. RESOURCE MANAGEMENT AREA B: RED DEER-WILLSON

Table 7.2

RMA B (RED DEER-WILLSON): OBJECTIVES AND GUIDELINES

Watershed

Resource Management Objectives	Resource Management Guidelines
To protect existing water quality and quantity and timing of runoff.	Location, intensity and methods of forest management and other resource activities will be regulated to minimize watershed impacts.
To protect the soil resource from erosion.	Existing roads and trails that have been washed out at stream crossings will either be reclaimed or properly maintained.
To determine the effect of timber harvesting and silviculture practices on the quantity of runoff.	Cattle grazing will be redistributed away from stream channels.
	Recreation development along the Red Deer and James rivers will be directed away from unstable and flood prone areas.

Wildlife

To increase wildlife populations to at least 300 moose, 300 elk, 400 mule deer and 15 wolverine.	A mosaic of forest cover types and foraging areas will be maintained to help increase ungulate populations.
To maintain stable populations of white-tailed deer (150), black bear (40), grizzly bear (5), cougar (15) and coyote (125).	Management of motorized access at identified problem sites (e.g., designated vehicle routes) is necessary to minimize harassment and habitat destruction.
To achieve a stable population of wolves (5).	Depredation problems along the eastern edge of this RMA will be controlled without eliminating the populations of wildlife species involved.
	Cattle grazing on critical elk winter range along Yara Creek will be managed to increase forage availability for elk winter use.
	Wolves will be managed through commercial trapping, treaty Indian hunting and recreational hunting to maintain a low population so as to optimize ungulate production.

Fisheries

Resource Management Objectives	Resource Management Guidelines
To protect habitat areas and to maintain water quality which are important for specific fish populations: a) Spawning and overwintering areas for bull trout and Rocky Mountain whitefish in the Red Deer River; b) Spawning, rearing and overwintering areas for bull trout, brook trout and Rocky Mountain whitefish in the James River and Willson Creek; and c) Specific habitat areas in Wigwam, Brown, Williams, South James, Parker, Windfall, Sawtooth, Teepee Pole and Bread creeks.	Additional fisheries survey work will be undertaken to identify the key spawning sites, rearing habitat and overwintering areas in greater detail.
	Fish and Wildlife Division and the Alberta Forest Service should undertake a co-operative program to delineate and correct grazing, recreation and resource extraction caused impacts on aquatic habitats of streams, such as Willson, Yara, Brown and South James creeks.
To protect migratory corridors for specific fish species: a) Red Deer River for Rocky Mountain whitefish and bull trout; and b) James River for Rocky Mountain whitefish.	Any formalized off-highway vehicle use will be directed away from sensitive aquatic habitats and should be restricted to established trails located in consultation with Fish and Wildlife Division.
To maintain and where possible enhance naturally reproducing game fish populations, thereby providing optimum recreational use.	Industrial activities will be closely monitored to ensure protection of water quality and aquatic habitat.
To enhance the fish overwintering potential of James Lake.	The fish overwintering potential of James Lake will be increased by raising the water level with a low level dam.

Recreation

To protect the high recreational values of the Red Deer River corridor.	Staging areas to be developed for the proposed Panther Corners equestrian trail will use existing access.
To provide a high quality experience for river users.	The following areas have been identified as priorities for recreational development: a) a group campground in the vicinity of the Red Deer River or Deer Creek
To provide opportunities for intensive and extensive non-motorized recreation activities.	

Table 7.2

RMA B (RED DEER-WILLSON): OBJECTIVES AND GUIDELINES (Continued)

Recreation

Resource Management Objectives	Resource Management Guidelines
To assess the feasibility of a designated motorized trail system from the southwestern portion of the unit linking to the Ghost River planning area, if the demand exists. To provide snowmobiling opportunities that will reduce the conflicts between snowmobilers and cross-country skiers. To ensure trail development is co-ordinated with the Ram-Clearwater and the Ghost River areas with linkages provided where necessary. To upgrade access to the Red Deer River.	forest recreation areas; b) the Woschuk's Crossing area for a water access point; and c) the Eight Mile Flats area for a water access point. Future recreation development may be directed to the following areas of high potential: a) the Red Deer River, James-Willson and Wildhorse campgrounds for upgrading and expansion of existing facilities; b) the Wigwam Creek (S.8, T.31, R.9. W of 5) and Gooseberry Flat areas for group camps; c) the Klein Lake area for hiking; d) the Burnt Timber/Red Deer River confluence for commercial rafting access; e) the abandoned minimum security prison camp location, for a commercial equestrian base camp, south of the Red Deer Ranger Cabin; and f) the Teepee Pole Creek area for a snowmobile staging area.

Tourism

Resource Management Objectives	Resource Management Guidelines
To ensure access to the Panther and Red Deer Rivers to facilitate commercial operations relating to canoeing, kayaking and river rafting, as well as scenic enjoyment. To allocate sites to commercial operators for base camps for commercial water-based and trail riding activities.	Commercial operators will be given planning advice by Alberta Tourism and Small Business in their efforts to obtain access to the Panther and/or Red Deer rivers. Base camp development will be the responsibility of the commercial operator. The duration of the disposition will be adequate to sustain a viable operation.

Tourism

Resource Management Objectives	Resource Management Guidelines
To encourage the maintenance of the existing facility at Mountain Aire Lodge by the private sector and to provide the opportunity for upgrading and expansion, if demand warrants. To recognize the Red Deer River road and the Forestry Trunk Road as the primary focuses for commercial development and touring opportunities.	

Historical Resources

The Archaeological Survey of Alberta Resource Management Section will participate in the land use referral process to review proposed developments in the following areas of the RMAs deemed to have historical resource potential
a) Lands adjacent to the James Red Deer and Panther rivers and their tributaries: Wilson Creek and its tributaries and Island Muskeg.
b) For the following areas Alberta Culture will participate in referrals on projects involving development of a quarter section or more land. lands adjacent to the unnamed lake west of Bull Creek and the upland area to the west of Whiskey Jack Crossing

Timber

To provide a sustained yield of wood fibre to meet the requirements of quota holders and of awards granted within the Brazeau Timber Development Area. To silviculturally enhance timber growth in the Willson Creek drainage and other areas, as appropriate. To intensively manage forested cut-over areas.	A survey of the Willson Creek drainage is required to select the most appropriate silvicultural management technique to bring this area into production. A Free to Grow survey will be completed on all cut-over areas when the regeneration is 15-20 years old, to determine the need for and/or appropriate treatment.

Table 7.2

RMA B (RED DEER-WILLSON): OBJECTIVES AND GUIDELINES (Continued)

Range

Resource Management Objectives	Resource Management Guidelines
To increase the forage production of the rangeland to maintain the 1977 preference quota of 4 095 AUMs. To increase this carrying capacity if compatible with wildlife objectives and good range management. To intensify range management techniques to optimize use of the secondary range. To monitor and manage escaped and/or abandoned horses.	Range improvement will be a priority where current stock use falls significantly short of the 1977 preference quota. The range management plans for these allotments will require revision. In areas where range improvement potential is low (e.g., Bread Creek Grazing Allotment), more intensive range management will be essential to optimize use of secondary range to reach the set carrying capacity. Consideration will be given to salting, fencing, riding, systems of use and changes in class of animal. Use of forage production on cutblocks should be optimized where it does not interfere with coniferous regeneration. The allocation and management of forage used by cattle, escaped and/or abandoned horses and wildlife in the Upper Red Deer and Williams Creek grazing allotments will be reviewed. The impact of escaped and/or abandoned horses along roads and on rangelands will be minimized through appropriate management practices. The level of forage use by horses being used for recreation on allotments will be monitored.

Minerals

To provide opportunities for industry to develop the natural gas reserves of the Ricinus, Limestone, Burnt Timber, Panther River and Wildhorse Creek fields and to explore other areas and formations within the RMA. To provide opportunities for the exploration of coal and other minerals.	Exploration, gathering systems, transport and processing facilities for petroleum and natural gas will be coordinated, where possible.

Settlement

Resource Management Objectives	Resource Management Guidelines
	*(Zone 4B) No residential development is permitted in the General Recreation Zone in this RMA (i.e. along the Red Deer and Panther rivers).

Access

To maintain and provide appropriate types and amounts of access.	Access management (e.g., designated vehicle routes) is required. Access development should be coordinated to meet a variety of resource management objectives. Access to the Red Deer and Panther rivers will be developed for river recreation.

Summary and Implications

The Red Deer-Willson RMA contains resource values capable of providing significant economic and social benefits. These benefits include: water production; hunting, trapping and fishing; commercial, public and private recreation (including snowmobiling, cross-country skiing, day use, camping, trail riding, water-based activities); commercial accommodation and related services; sustained yield timber production; forage production for wildlife and domestic grazing; and production of petroleum and natural gas.

Management required for this RMA includes: regulation of forest management and other resource activities; co-ordinated access planning and access management; reclamation of stream crossings; water access development and commercial base camp allocation; development of hiking and snowmobiling trails and trailheads; maintenance of auto-access campgrounds; group camp development; increased timber allocation; sustained yield timber management; silvicultural enhancement; range improvement; review of the management and allocation of forage to cattle, elk and escaped and/or abandoned horses. A procedure to re-allocate forage has been developed for the Clearwater Grazing Allotment. It will be applied to the Upper Red Deer and Williams Creek grazing allotments.

The significant watershed, wildlife, fisheries, recreation, tourism and industrial resource values within this RMA cannot be fully realized without management of access, including recreational use and coordination of development. The wildlife and domestic grazing objectives may not be fully met with the proposed range improvements if the populations of escaped and/or abandoned horses in this RMA increase. Appropriate management practices will be applied if these unregulated populations of horses increase their consumption of available forage.

4.3 Resource Management Area C: Red Deer-Raven

Description

This RMA contains portions of the boreal uplands and boreal foothills ecoregions. The major drainages are the Red Deer, James and Raven rivers. The terrain in this unit varies from colluvial, till and lacustrine deposits to hummocky moraine. As the major creeks in this RMA are characterized by fine alluvial flood plains, stream contacts reduce channel and bank stability. Of particular concern is Beaver Creek, a water source for the Raven provincial brood stock station. There is also a high demand to maintain the water quality of the Red Deer River. These watercourses have a moderate to high quality sensitivity rating, meaning that they are susceptible to negative impacts from land use activities and, in particular, to changes in sediment levels. The watersheds in this unit are rated low in terms of water yield.

Burnstick Lake was enlarged and flows are controlled by a dam at the outlet; the lake receives a high level of recreation use. There are also numerous pothole lakes associated with the poorly drained hummocky moraine east of Burnstick Lake.

This unit contains a transition from coniferous dominated habitats in the west through mixed and deciduous habitats bordering the agricultural land fringe. Moose and elk are most abundant in the western and northern portions of this RMA as are black bear, wolves and other furbearers. Mule deer, white-tailed deer and upland game birds are abundant in the central and eastern portions of the unit. Major stream valleys, including the Red Deer and James rivers, provide important wintering habitat and travel corridors for most large wildlife species of the area. Because of the proximity of agricultural lands, seasonal depredation problems caused by elk and occasionally by wolves occur in this RMA. Extensive unregulated access development, particularly in the Burnstick Lake and upper Raven River drainage, has had an adverse impact on wildlife populations by allowing excessive harvest and harassment.

The streams crossing the Red Deer-Raven RMA support migratory and resident sportfish populations and provide good fishing opportunities. The major streams are the Red Deer and James rivers which

provide habitat for Rocky Mountain whitefish, bull trout, brook trout and brown trout. Tributaries to these two rivers also provide spawning and rearing habitat for these sportfish species. A number of the streams in this RMA are being damaged by road construction and from bank degradation caused by cattle. Maintenance of the integrity of Beaver Creek and its drainage is essential because it provides water supply to the Raven provincial brood stock station.

Burnstick Lake is the only significant lake fishery in the unit. It supports populations of northern pike, perch and some trout, providing summer and winter fishing opportunities. Other lakes in this area have been evaluated and have demonstrated fisheries potential.

Two major focal points for recreation in this RMA are Burnstick Lake and the Red Deer River. Along the James River, within the Forest Reserve, random camping is moderately high as well.

The 30-unit campground on the northeast shore of Burnstick lake, managed by Municipal District No. 99, was frequently overused in the past; the campground has recently been expanded by the local authority. The size of the lake is only 295 ha (730 a.) with a limited area of deep channel. Alberta Recreation and Parks has a 200 ha (500 a.) reservation on the south shore of Burnstick Lake for future development as a recreation area.

The Red Deer River is heavily used by canoeists, kayakers and rafters, particularly in the vicinity of Cache Hill and Cartier Creek. Several potential campground locations exist along the Red Deer River and random camping is high within the Green Area. Commercial rafting companies also use the river; one company has a miscellaneous lease for a staging area near the confluence of Burnt Timber Creek and the Red Deer River. At the mouth of Teepee Pole Creek, on the James River, there is a church camp operating under a miscellaneous lease.

The minor portion of the Bearberry Prairie Natural Area that falls within the Red Deer-Raven RMA is under reservation as an educational natural area. (Two segments east of the RMA boundary are under an order-in-council.) The area contains diverse shrublands and riverine communities situated on a braided river floodplain.

To date there have been no historical resource inventory studies conducted in the Red Deer-Raven RMA. However, based on data available from outside of the RMA, major and minor drainage systems,

including numerous small lakes, all contain potential for the occurrence of prehistoric sites. There are no known fossil occurrences, but a high probability that significant resources exist.

The portion of this RMA north of the Red Deer River and within the Forest Reserve is part of the proposed Brazeau Timber Development Area. In that portion of the Green Area south of the Red Deer River and outside the Forest Reserve, there is harvesting by quota operators and there is a miscellaneous timber use (MTU) area. The MTU consists of three per cent of the B6 Forest Management Unit's annual allowable cut. Much of the RMA is covered with aspen and aspen/coniferous mix which regenerated after a major fire in 1936. This RMA has a high timber production capability.

There are three complete grazing allotments within the Forest Reserve portion of this RMA (Lower James, Bearberry Creek and Coalcamp Creek) and two partial allotments (the Hauling Creek and Boundary Hill distribution units of the Lower Red Deer Grazing Allotment, and the Heifer Lake distribution unit of the Lower Fallentimber Grazing Allotment). The 1977 preference quota within the Forest Reserve totals 2 767 AUMs.

In the Green Area (as proposed) outside the Forest Reserve, there were 18 grazing leases and permits in 1977 with a carrying capacity of 12 631 AUMs. One additional grazing permit provided an extra 60 AUMs by 1984. As revised, the White Area grazing dispositions will have a 1977 carrying capacity of 2 196 AUMs.

Over the past few years, there has been extensive range improvement on leases. The potential for range improvement within the Forest Reserve (i.e. on allotments) is low. The carrying capacity compared to actual use differs only marginally.

Recent counts indicate that approximately 25 escaped and/or abandoned horses are grazing in the vicinity of Cartier, Coalcamp and Smith creeks.

This RMA is an important area for petroleum and natural gas; 95 per cent of the unit is under petroleum and natural gas disposition. Portions of the Ricinus and Caroline fields extend into this RMA; sulphur occurs in both fields. Most of the petroleum production and reserves of the planning area is from this RMA (approximately 300 000 m^3 and three million m^3, respectively). Natural gas production is 500 million m^3, with reserves of 19 billion m^3. Petroleum industry

infrastructure includes five gas processing plants, over 150 wells and major pipelines for both petroleum and natural gas. There is potential for discovery of thermal grade coal reserves. Some coal was produced in the past from the Coal Camp Creek deposit located in the eastern part of the RMA.

All of the privately held patent land (250 km^2 or 95 sq. mi.) within the Red Deer-James map sheet is in this RMA. Grazing and limited amounts of cultivation (i.e. cereal crops and forage) occur on these patent lands. A number of cottage subdivisions are located on patent land along the Red Deer River and also on a mixture of patent and leased lots along Burnstick Lake's north shore.

The main access to this RMA is supplied by Secondary Roads 584 and 922, and the Red Deer River Access Road. The latter has recently been substantially upgraded. Additional access is provided by a number of gravel roads (servicing the more developed eastern edge of the RMA) and industrial roads (of various standards). Motorized vehicles also use the extensive network of seismic lines, although summer use is limited by areas of poor drainage.

Resource Management Intent

The general resource management intent for the Red Deer-Raven RMA is:

> To provide for a full range of multiple use activities regulated to prevent adverse environmental impacts on watershed, fisheries and wildlife values while recognizing the recreational emphasis of the Red Deer River and Burnstick Lake.

Revised Eastern Slopes Zoning

The revised Eastern Slopes zoning for the Red Deer-Raven RMA is presented in Figure 17. (For comparison to the 1977 zoning, see Figure 9.) The variety of resource values present in this RMA has resulted in a variety of zoning designations: Critical Wildlife, General Recreation, Multiple Use, Agriculture, Industrial and Facility Zones.

The Critical Wildlife Zone has been applied to riparian and wetland areas to designate the areas of highest value as fish and wildlife habitat. The General Recreation Zone along the Red Deer River corridor and around Burnstick Lake provides a focal point for recre-

ation development and indicates the areas of highest concern for maintenance of recreational and aesthetic values. (The Bearberry Prairie Natural Area is included within the General Recreation Zone because of its small size.)

Lands which have the highest value for improved grazing are designated as an Agriculture Zone. The Industrial Zone designates an existing large capacity gas plant. The cottage subdivision on Burnstick Lake has been designated as Facility Zone. The Multiple Use Zone reflects timber and grazing values and the cumulative effect of other zone adjustments.

Resource Management Objectives and Guidelines

Table 7.3 contains the resource management objectives and guidelines and specific to the Red Deer-Raven RMA.

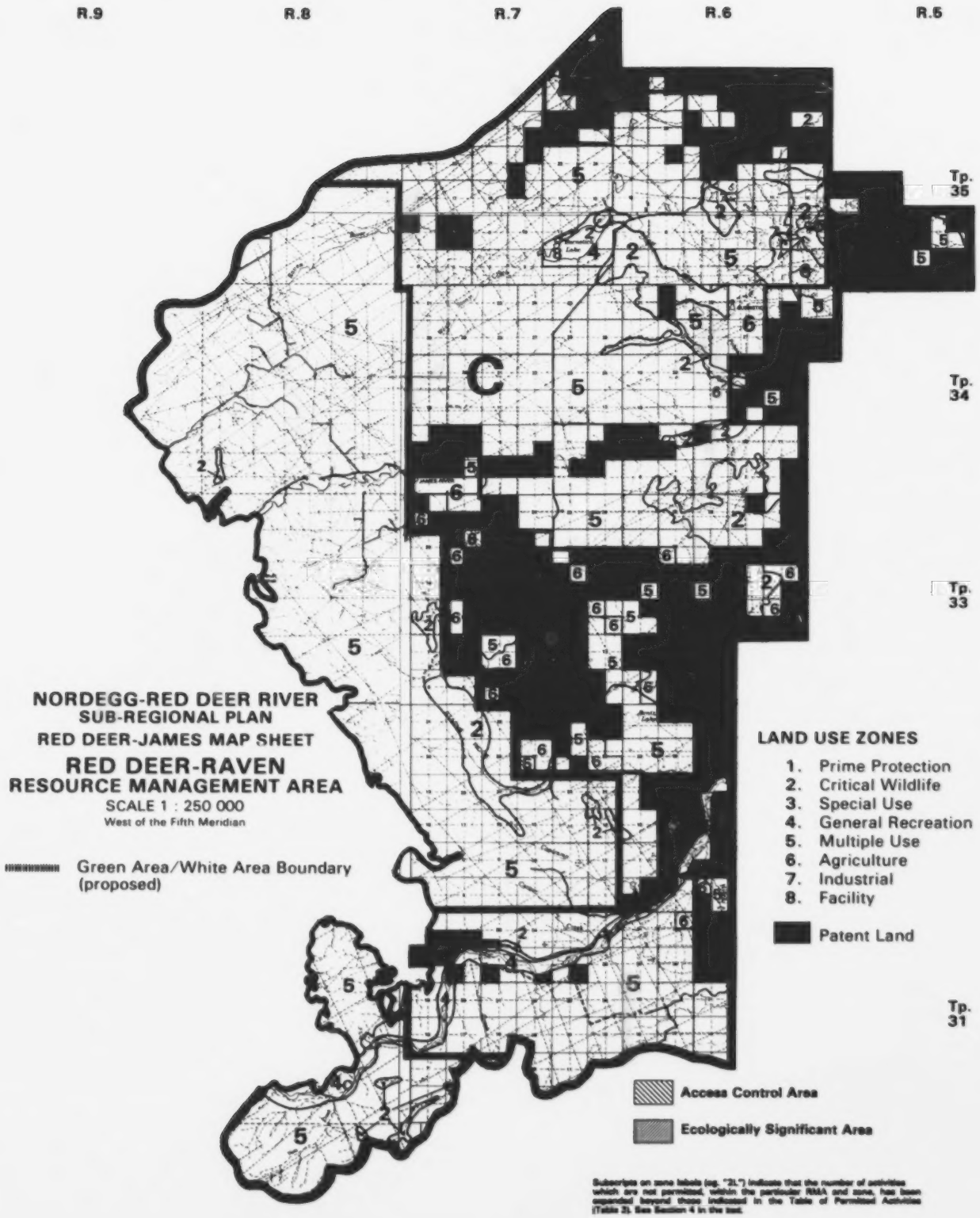


Figure 17. RESOURCE MANAGEMENT AREA C: RED DEER-RAVEN

Table 7.3

RMA C (RED DEER-RAVEN): OBJECTIVES AND GUIDELINES

Watershed

Resource Management Objectives	Resource Management Guidelines
To protect soil resources from erosion. To protect existing water quality, quantity and timing of runoff.	Location, intensity and methods of all resource activities will be regulated to minimize watershed impacts. Generally, the normal watershed operational guidelines will be sufficient to maintain watershed quality. However, stream crossings should be limited due to unstable streambanks, and road construction should incorporate design factors that will minimize erosion. Cattle should be distributed away from streambanks along the Raven River, and Stony and Bearberry creeks where erosion of streambanks is occurring.

Wildlife

To maximize moose densities to at least 800 head. To maintain stable populations of elk (200), mule deer (300), white-tailed deer (200) and blue herons (30). To achieve populations of 30 black bear, five cougar and 125 coyote. To maintain or increase wolverine to at least 10 so as to maintain the species' natural distribution. To maintain other furbearer populations to allow for continuation of the present level of fur harvest.	The primary regulation of animal densities will be done by commercial trapping, treaty Indian hunting and recreational hunting. Animals causing depredation will be controlled in accordance with existing problem wildlife procedures. In the case of grizzly bears and wolves, this could result in extirpation from this RMA. Maintenance of a mosaic of forest cover types and foraging areas is vital to maintaining wildlife productivity. Escaped and/or abandoned horses should be controlled within this unit to prevent competition with ungulates. The blue heron colony near Burnstick Lake will be maintained by minimizing harassment and maintaining a habitat buffer around it.

Fisheries

Resource Management Objectives	Resource Management Guidelines
To protect habitat areas which are important for specific fish populations: a) Spawning, rearing and overwintering areas for brook trout in West Stony Creek and brook trout and brown trout in the Raven River; and b) Portions of the James River, East Stony Creek, Teepee Pole Creek and Brown Creek. To protect the water supply of the Raven provincial brood stock station by maintaining acceptable water quality in the Beaver Creek watershed. To protect the migratory corridor along the Red Deer River for Rocky Mountain whitefish and bull trout. To maintain and where possible enhance natural reproducing game fish populations, providing optimum angling use. To maintain or enhance lakes with fisheries potential: a) Burnstick Lake b) Yellowhead Lake c) Birch Lake d) Others as they are identified. To conduct additional surveys of lakes and streams in this planning unit.	Further fisheries survey work will be done to locate critical habitats and determine population sizes; this information is necessary to establish specific guidelines for protection of fish populations in this unit. Additional fisheries will be developed to increase angling opportunities and distribute fishing pressure. When stocks become available, Burnstick Lake will be considered for walleye stocking, Birch Lake for brook trout stocking and Yellowhead Lake for brook trout stocking. Any formalized off-highway vehicle trails will be planned in conjunction with Fish and Wildlife Division to ensure they do not impact critical fish habitats, and that crossings are acceptable from a fisheries standpoint. Owing to the importance of Beaver Creek as a water supply to the Raven provincial brood stock station, stringent development restrictions will be appplied to activities (e.g., range improvement) occurring within the watershed. Fish and Wildlife Division will draft operational plans to ensure increased watershed protection. Industrial road development has damaged streams in this unit through creation of erosion problems and migration blockages. An inventory of these problem sites should be conducted to identify sites requiring corrective work (e.g., East Stony Creek is one area of particular concern in this RMA). Domestic grazing has adversely affected a number of smaller streams

Table 7.3

RMA C (RED DEER-RAVEN): OBJECTIVES AND GUIDELINES (Continued)

Fisheries

Resource Management Objectives	Resource Management Guidelines
	in this unit. Improved livestock management, particularly on Crown lands but also on private land bordering watercourses, will be encouraged to alleviate this problem. East Stony Creek, the Raven River and Bearberry Creek are streams which have this problem. In certain areas, Buck for Wildlife fencing projects may be initiated to correct serious aquatic habitat damage problems. Beaver Creek requires additional fencing and lower East Stony Creek area is another priority. Further stream inventories will be conducted to identify other priority sites for fencing. Development of recreational facilities at Burnstick Lake will not proceed at the expense of aquatic habitat.

Recreation

To protect the high recreation values of the Red Deer River corridor. To provide a high quality recreation experience for river users. To provide opportunities for intensive and extensive, non-motorized recreational activities. To provide opportunities for winter recreation including snowmobiling, cross-country skiing and ice-fishing.	The Cache Hill area has been identified as a priority for water access development. The Cache Hill and James Entrance areas indicate high recreation potential and may be considered for future campground developments. Camping facilities at Burnstick Lake have been upgraded and expanded by the local authority. Planning and management of the facility and the lake will involve joint government/public consultation to minimize user conflicts. Existing trails will be used for winter recreation, including cross-country skiing and snowmobiling.

Tourism

Resource Management Objectives	Resource Management Guidelines
To ensure access to the Red Deer River for commercial operations relating to canoeing, kayaking and rafting, as well as scenic enjoyment. To allocate sites to commercial river users for base camps. To promote commercial development and touring opportunities along Secondary Road 584 and the Red Deer River road. To consider private sector recreation proposals in this RMA.	Commercial operators will be provided with planning advice by Alberta Tourism and Small Business in their efforts to obtain access to the Red Deer River. Base camp development will be the responsibility of the commercial operator. The duration of the disposition will be adequate to sustain a viable operation.

Ecological and Historical Resources

To protect the ecological resources present within the Bearberry Prairie Natural Area.	An appropriate land use reservation will be maintained to preserve the site's natural attributes. The Archaeological Survey of Alberta, Resource Management Section will participate in the land use referral process to review proposed developments in the following areas of the RMAs deemed to have historical resource potential: a) Lands adjacent to the Raven, James and Red Deer rivers and their tributaries; Burnstick Lake; and West Stony, East Stony, Peske and Bearberry creeks and their tributaries. b) For the following areas, Alberta Culture will participate in referrals on projects involving the development of land of a quarter section or larger: lands adjacent to Beaver Lake and adjacent to nearby unnamed lakes; unnamed lakes in sections 12, 16, 17, 22, 32, 33-33-7-W5; and unnamed lakes in sections 20, 30, 33-32-7-W5.

Table 7.3

RMA C (RED DEER-RAVEN): OBJECTIVES AND GUIDELINES (Continued)

Timber

Resource Management Objectives	Resource Management Guidelines
To provide a sustained yield of wood fibre to meet the requirements for quota holders and other awards granted within the Brazeau Timber Development Area.	The land proposed as Green Area will be incorporated into Forest Management Unit B6 and managed under sustained yield policies.
To continue to meet local demand through maintenance of the miscellaneous timber use area.	The miscellaneous timber use area will be maintained.
To maximize utilization of existing growing stock requiring salvage on lands in the White Area, as demand warrants.	Harvesting will occur on a liquidation basis in the White Area, with the exception of the following areas: Sections 29, 30, 31, S 1/2 32-32-6-W5 NE 25-32-7-W5, S1/2 25-35-7-W5
To intensively manage forested cut-over and burned areas.	The above exception areas will be managed on a multiple-use basis, including management for range, wildlife and timber values. These lands will be withheld from sale. A management plan, including both timber and range management, will be drawn up for each lease in these areas. Timber will generally be managed on a sustained yield basis, as long as 1977 domestic stocking rates can be simultaneously maintained.
	In those parts of the White Area to be harvested on a liquidation basis, timber should be allowed to reach merchantable sizes where possible, in order to maximize timber resource use.
	A Free to Grow survey will be completed on all cut-over and burned areas when the regeneration is 15-20 years old, to determine the need for and/or appropriate treatment.

Range

To maintain the preference quota of the grazing allotments (within the Forest Reserve) at least at the 1977 level of 2 767 AUMs.	Range management plans for grazing dispositions and allotments will be revised, as required.

Range

Resource Management Objectives	Resource Management Guidelines
To maintain the 1977 carrying capacity outside of the Forest Reserve of 14 827 AUMs.	Range development plans will be prepared on dispositions and allotments having potential for range improvements.
To optimize use of the range by domestic livestock and wildlife through more intensive range management practices.	The success of range improvements will be monitored to ensure optimal carrying capacities are set.
To monitor and manage escaped and/or abandoned horses.	Grazing by domestic stock will be kept to ecologically acceptable levels.
	The impact of escaped and/or abandoned horses along roads and on rangelands will be minimized through appropriate management practices.

Minerals

To provide opportunities for industry to develop the petroleum and natural gas reserves of the Caroline and Ricinus fields and to explore other areas and formations within the RMA.	Exploration, gathering systems, transport and processing facilities for petroleum and natural gas will continue to be co-ordinated where possible.
To provide opportunities for industry to assess and develop the Coalcamp Creek coal deposit and to explore for other coal deposits.	

Settlement

To analyse the landscapes of the Red Deer-Raven RMA for potential public and private recreation facilities within permitted areas.	Criteria will be developed to determine the site and infrastructure requirements of potential recreational developments within this RMA. Actual sites will not be located until a disposition policy is in place.
	* (Zone 4c) Residential development in the General Recreation Zone will be permitted only outside of the Forest Reserve (i.e. Burnstick Lake and along the Red Deer River). (The priority for these areas is established in the Resource Management Strategy.)

Table 7.3

RMA C (RED DEER-RAVEN): OBJECTIVES AND GUIDELINES (Continued)

Access

Resource Management Objectives	Resource Management Guidelines
To maintain and provide appropriate types and amounts of access.	Access management (e.g., designated vehicle routes) is required. Access development should be co-ordinated to meet a variety of resource management objectives. Access to the Red Deer River will be developed for river recreation.

Summary and Implications

The resource values within the Red Deer-Raven RMA are capable of providing significant economic and social benefits. These include: hunting, trapping and fishing; water supply for the Raven provincial brood stock station; motorized and non-motorized recreation (including snowmobiling, cross-country skiing and camping); commercial, public and private water-based opportunities; sustained yield and liquidation timber production; forage production for wildlife and domestic grazing; production and processing of petroleum and natural gas; and potential recreational facility development. The proposed Green Area/White Area boundary adjustment rationalizes the allocation of agricultural lands timber and related values within the RMA.

Management required for this RMA includes: regulation of forest management and other resource activities; review of existing access; co-ordinated access planning; management of recreational access; reclamation of stream crossings; fencing of streams; problem wildlife management; additional fish stocking (walleye and brook trout); campground and water-access development; base camp allocation for commercial river users; sustained yield and liquidation harvesting; intensive range management practices (including range improvements); and development and application of criteria to determine the site and infrastructure requirements of potential recreation facility development.

The watershed, wildlife, fisheries, recreation, tourism, industrial and settlement resource values within this RMA cannot be fully realized without management of access.

4.4 Resource Management Area D: Clearwater-Tay

Description

This RMA contains portions of the boreal uplands and boreal foothills ecoregions. The waterbodies crossing or within this RMA are the Clearwater and Tay rivers, as well a few small streams and lakes.

This RMA has a relatively low value in terms of water production but most of the major permanent streams and lakes support productive and popular sport fisheries. This unit has a moderate watershed sensitivity with poor soil drainage and erosion prone stream banks being the greatest concerns. The Clearwater River has a highly meandering braided stream channel prone to cutting and backshore flooding under peak flows. Much of the Tay River valley bottom is poorly drained and susceptible to terrain damage caused by summer access. Extensive cattle damage to the mid and upper reaches of Alford Creek has occurred on private land. Lower Moose Creek has also been damaged by cattle use. The large number of linear developments associated with the petroleum and natural gas industry, and to a lesser extent, timber harvesting activites, are also concerns.

Moose, mule deer, white-tailed deer and upland game birds are the more heavily used wildlife species within this RMA. All species will benefit from continuation of properly designed timber harvest activities which open up the coniferous forest cover and increase habitat diversity. Elk will be encouraged to increase in this unit as long as depredation problems do not become serious on fringe agricultural land to the east. Wolves and bears will be kept at relatively low densities to avoid depredation problems. The provincial hunter training camp at Alford Lake will require additional land area for expansion as its level of use continues to increase.

This RMA contains excellent stream fisheries and fair lake fisheries. The Clearwater and Tay rivers contain high populations of Rocky Mountain whitefish and brown trout, and some brook trout and bull trout, and hence support heavy recreational angling pressure. Alford and Moose creeks provide excellent brown trout and brook trout fisheries; however, access to Alford Creek has been seriously restricted through the posting of private lands in this RMA. Alford and Moose creeks continue to suffer habitat deterioration as a result of overuse by livestock on both Crown and private lands. Recreational

fisheries for stocked rainbow trout exist at Tay, Alford and Phyllis Lakes. Generally this area receives very heavy sport fishing pressure.

There is a moderate level of recreation use in this unit, with the Clearwater and Tay Rivers being the main focus of recreation use. Activities include fishing and hunting, off-highway vehicle use, snowmobiling and random camping. The present emphasis is on the Clearwater River/Secondary Road 591 corridor for a variety of formal and informal camping and day use activities and facilities. Recreational cottages have been developed on private lands along the lower Tay River, Alford Creek and the Clearwater River. During July and August, recreation facilities are generally half full on weekdays and at (or slightly over) capacity on weekends. A large area south of the Clearwater River has been identified as having a moderate to high potential for outdoor recreation. Canoeing, kayaking and rafting occurs on the Clearwater River. The Clearwater River, rated as a Class III river for canoeing, is suitable only for experienced river travellers.

The Clearwater-Ricinus Natural Area was established by Order-in-Council 454/71. It is also an International Biological Program site. This natural area is best suited to conservation and limited recreational uses. The accessibility and scenic location of this site along the Clearwater River increase its recreational potential.

Within this RMA the terraces of the Clearwater and Tay Rivers are considered to be archaeologically sensitive. To a lesser degree the smaller tributary streams throughout the RMA as well as the shorelines of small lakes and exposed benchlands overlooking river terraces are considered to have historical resource potential.

There are no known fossil sites.

This RMA falls within the R9 Forest Management Unit (FMU) and generally has a higher capability for timber production than the remainder of the R9 FMU because of better climatic conditions and higher soil productivity. The western half of this RMA, including most of the Tay River and Moose Creek drainages, falls within the Nordegg block of the Brazeau Timber Development Area. Increased levels of timber harvesting can be expected.

Domestic grazing in the Green Area (as proposed) in this RMA occurs on seven leases, three permits, one grazing allotment and two head tax permits. In 1977, there was a total carrying capacity in the Green Area (proposed) of 1875 AUMs outside of the Forest Reserve, and a

preference quota totalling 228 AUMs in the Forest Reserve. By 1984, three other grazing permits provided an additional 207 AUMs of forage. Stock returns indicate that four of the seven leases in the Green Area are overused and that management and distribution problems are occurring. Domestic grazing in the White Area (as proposed) in this RMA occurs on one lease and one permit with a carrying capacity of 251 AUMs.

The Moose Creek Grazing Allotment and Lower Moose and North Raven head tax permits require range surveys and updated range management plans. Use of the Moose Creek Grazing Allotment averages 90 per cent and use of the North Raven Head Tax Permit averages 110 per cent.

There are important petroleum and natural gas resources and associated infrastructure in this RMA. Almost 90 per cent of the area is under petroleum and natural gas dispositions. Portions of three petroleum and natural gas fields are located here: the Ricinus, Ricinus West and Caroline fields. Sulphur is found in all three of the fields. A gas processing plant, major pipelines and several producing and capped wells are located in the area. Production and reserves of oil in 1984 were 160 000 m^3 and 1.8 million m^3 respectively. Production and reserves of natural gas were 40 million m^3 and 320 million m^3. There are no designated coal deposits, but as in other RMAs, exploration has been limited and potential exists for deposits of thermal coal.

All of the patent lands (approximately 30 km^2) found within the Ram-Clearwater map sheet are located within the Clearwater-Tay (RMA D). The patent parcels are used mainly for agricultural and recreational purposes, with limited amounts of institutional and commercial development.

The major access in this RMA is supplied by Secondary Road 591 (a westward extension of Highway 54), the Forestry Trunk Road (south of the Clearwater Ranger Station), other gravel roads (e.g., north of Tay River gas plant), industrial roads (throughout the RMA), and local access to lakes and patent parcels.

Resource Management Intent

The general resource management intent for the Clearwater-Tay RMA is:

> To provide for a full range of multiple use activities regulated to prevent adverse environmental impacts on watershed, wildlife and fisheries resources.

Revised Eastern Slopes Zoning

The revised zoning for this RMA includes Critical Wildlife (Zone 2), Special Use (Zone 3), Multiple Use (Zone 5) and Industrial (Zone 7). The 30 ha (80 acre) Clearwater-Ricinus Natural Area is designated as Special Use. An industrial zone for the Tay River gas plant has been applied to the 15 ha (40 acre) lease.

The revised Eastern Slopes zoning for this RMA is presented in Figure 18. (For comparison to the 1977 zoning, see Figure 10.)

Resource Management Objectives and Guidelines

Table 7.4 contains the resource management objectives and guidelines specific to the Clearwater-Tay RMA.

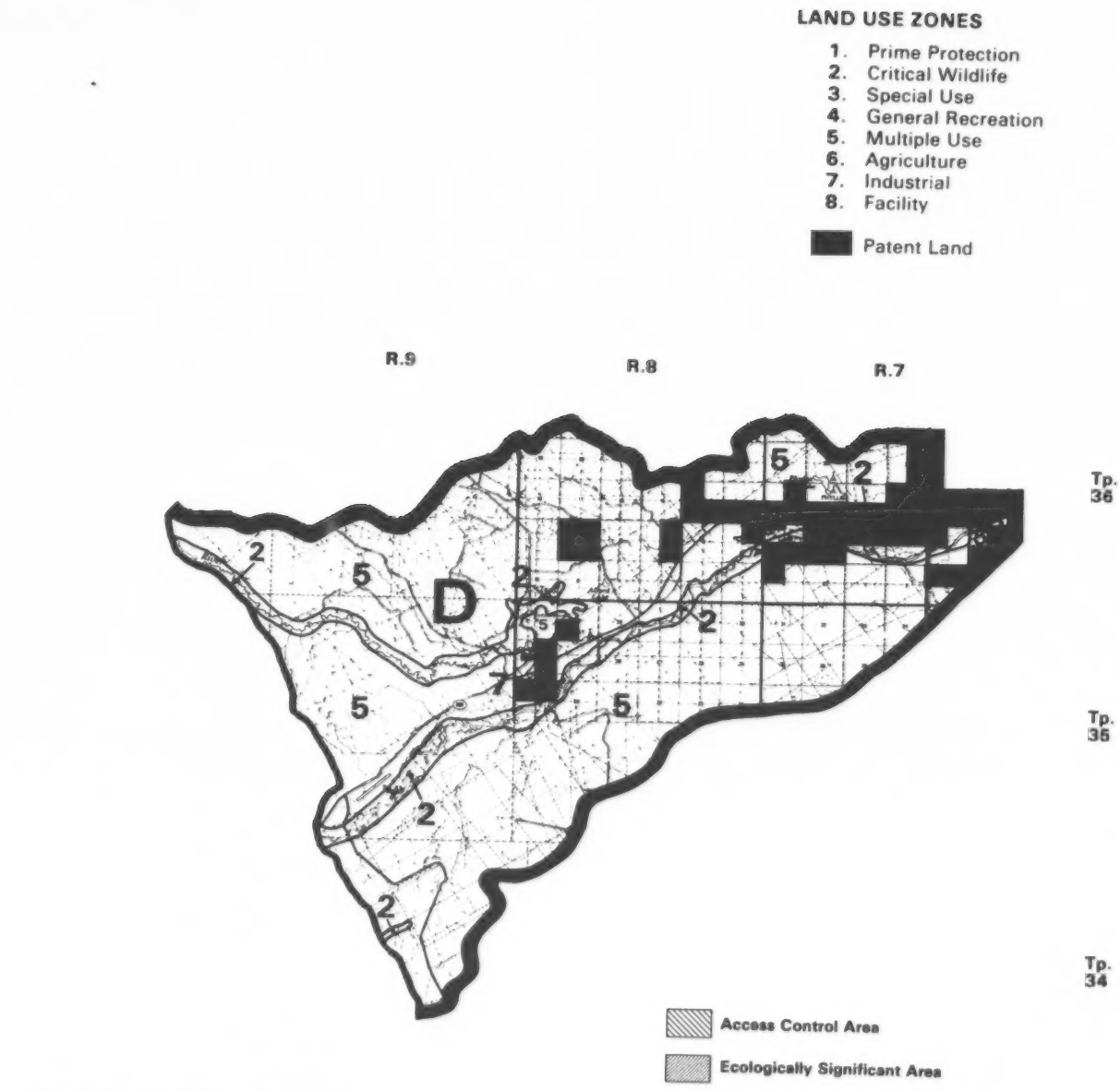

LAND USE ZONES
1. Prime Protection
2. Critical Wildlife
3. Special Use
4. General Recreation
5. Multiple Use
6. Agriculture
7. Industrial
8. Facility
Patent Land
R.9
R.8
R.7
Tp. 36
Tp. 35
Tp. 34
D
Access Control Area
Ecologically Significant Area
Subscripts on zone labels (eg. "2L") indicate that the number of activities which are not permitted, within the particular RMA and zone, has been expanded beyond those indicated in the Table of Permitted Activities (Table 3). See Section 4 in the text.
NORDEGG-RED DEER RIVER
SUB-REGIONAL PLAN
RAM-CLEARWATER MAP SHEET
CLEARWATER-TAY
RESOURCE MANAGEMENT AREA
SCALE 1 : 250 000
West of the Fifth Meridian
Green Area/White Area Boundary (proposed)

Figure 18. RESOURCE MANAGEMENT AREA D: CLEARWATER-TAY

Table 7.4

RMA D (CLEARWATER-TAY): OBJECTIVES AND GUIDELINES

Watershed

Resource Management Objectives	Resource Management Guidelines
To maintain water quality and where necessary (e.g., Alford Creek) to improve water quality.	Land use activities will be confined to the winter months in poorly drained areas of the Tay River valley wherever possible.
To minimize erosion, terrain damage and sedimentation resulting from land use activities.	Common rights of way and existing access will be used where possible.

Wildlife

To increase populations to 375 moose, 500 mule deer and 300 white-tailed deer.	A mosaic of forest cover types is required to increase ungulate populations.
To maintain at least 150 elk, 20 black bear, five cougar, five wolverine and 40 coyotes.	Elk depredation problems will be managed on a site-by-site basis to resolve chronic problems.
To protect osprey nesting sites located along the Clearwater River.	Wolves will be kept at minimal numbers by encouraging registered trapline holders to harvest the species.
	Wolves and grizzly bears will be removed in response to depredation complaints.
	Overuse of Crown grazing leases by domestic stock will be corrected to reduce impacts on mule deer, white-tailed deer, upland game birds and song birds.

Fisheries

To protect habitat areas which are important for specific fish populations: a) Overwintering, rearing and spawning areas for bull trout, brown trout and Rocky Mountain whitefish in the Clearwater River; b) Overwintering, spawning and rearing areas for brook trout and brown trout in Alford and Moose creeks; c) The Tay River to support bull trout, brook trout and Rocky Mountain whitefish.	Further fisheries survey work is required to locate critical habitat and determine population sizes. This information is necessary to establish specific guidelines for management and protection of fish populations in this unit.
	Detailed management plans will be developed for Phyllis, Alford and Tay lakes and key streams in the RMA.

Fisheries

Resource Management Objectives	Resource Management Guidelines
To protect the Clearwater River migratory corridor for Rocky Mountain whitefish, bull trout and brown trout.	Domestic stock grazing has negatively impacted a number of streams, particularly Alford and Moose creeks. Improved livestock management will be encouraged on leased Crown land and private lands bordering watercourses to alleviate this problem. In certain locations, Buck for Wildlife fencing projects may be undertaken to correct particularly serious fish habitat damage problems. Alford Creek requires fencing before agricultural use degrades the stream to a point where it cannot support viable trout populations.
To maintain or enhance lakes with fish stocking potential: a) Phyllis Lake; b) Alford Lake; c) Tay Lake; and d) Others as identified	Stream habitat deterioration caused by industrial developments will be minimized and the habitat will be reclaimed.

Recreation

To provide and maintain adequate opportunities for outdoor recreation, with the main emphasis on the Clearwater River/Secondary Road 591 corridor.	Existing auto-access camping and day-use facilities will be maintained and upgraded as required. Expansion or development of additional auto access facilities is not justified by demand at this time.
To maintain and expand the hunter training facility at Alford Lake.	The provincial hunter training facility at Alford Lake requires additional land for expansion, as the levels of use continue to increase.

Tourism

To recognize Secondary Road 591 as the primary focus for commercial development and touring opportunities within this RMA.	As the Clearwater River is subject to varying flows, overhanging trees, log-jams and shifting channels, use of the river by private recreation craft is not advised.
To provide opportunities for commercial river rafting along the Clearwater River.	

Table 7.4

RMA D (CLEARWATER-TAY): OBJECTIVES AND GUIDELINES (Continued)

Tourism

Resource Management Objectives	Resource Management Guidelines
To consider private sector recreation proposals in this RMA.	

Ecological and Historical Resources

To retain the Clearwater-Ricinus Natural Area for conservation and recreation purposes.	The order-in-council for this site will be retained. Users of this natural area should consider the site's sensitivity to soil erosion.
	The Archaeological Survey of Alberta, Resource Management Section will participate in the land use referral process to review proposed developments in the following areas of the RMAs deemed to have historical resource potential: a) Lands adjacent to the Tay and Clearwater rivers and their tributaries; and Tay, Alford and Phyllis lakes; b) For the following areas, Alberta Culture will participate in referrals on projects involving the development of a quarter section or more land: minor tributaries and upland areas to Clearwater River and upland areas to the west of Phyllis Lake and between Tay and Alford lakes.

Timber

To provide a sustained yield of wood fibre to meet the requirements of quota holders and of awards granted within the Brazeau Timber Development Area.	The land proposed as Green Area will be incorporated into Forest Management Unit R9 and managed under sustained yield policies.
To maximize utilization of existing growing stock requiring salvage on public lands in the White Area, as demand warrants.	Merchantable timber on public lands in the White Area will be allowed to mature before liquidation harvesting, where possible.

Range

Resource Management Objectives	Resource Management Guidelines
To maintain the 1977 carrying capacity of 2 126 AUMs on the existing grazing dispositions and the 1977 preference quota of 228 AUMs on the one allotment, and to increase the carrying capacity by means of range improvement where feasible.	Range surveys and updated management plans are required for grazing dispositions. Priority will be placed on those dispositions that have been consistently overused and on those dispositions where stream damage is occurring.
To increase the level of range management of grazing dispositions so as to maintain the range in good condition.	

Minerals

To provide opportunities for industry to develop the petroleum and natural gas reserves of the Caroline, Ricinus and Ricinus West fields and to continue exploration of other areas and formations.

Settlement

To analyse the landscapes of the Clearwater-Tay RMA for potential recreational facility developments.	Criteria will be developed to determine the site and infrastructure requirements of potential recreational developments. Patent and public lands in the Phyllis Lake area have potential for public and private facility development.

Access

To maintain and provide appropriate types and amounts of access within the Clearwater-Tay RMA.	Co-ordination of access, in particular of linear developments, is required to achieve a variety of resource management objectives.

Summary and Implications

The significant economic and social benefits available from the Clearwater-Tay RMA include: hunting, trapping and fishing, hunter training, camping, day use, snowmobiling, off-highway vehicle use and expert canoeing; commercial water-based activities; sustained yield and liquidation timber production; forage production for domestic stock and wildlife; production and processing of petroleum and natural gas; and potential recreational facility development. The proposed Green Area/ White Area adjustment rationalizes the allocation of agricultural lands, timber and related values within the RMA.

Management required for this RMA includes: regulation of forest management and other resource activities; co-ordinated access planning; fencing of streams; problem wildlife management; timber management; improved range management (including fencing and range improvement); and development and application of criteria to determine the site and infrastructure requirements of potential facility developments.

The key management requirement is management of linear developments. The resource values cannot be fully realized without co-ordination of access development.

4.5 Resource Management Area E: Ram-Clearwater

Description

This RMA is predominantly boreal uplands, with minor components of the boreal foothills (in the vicinity of the Ram River-North Saskatchewan River confluence) and subalpine ecoregions. The subalpine component consists mainly of limestone ridges, extending south of the Brazeau Range (Corkscrew Mountain) and parallel to the Front Range (Limestone Mountain, Kiska Tower). The most significant waterbodies are the Clearwater, North Ram and Ram rivers, and Peppers Lake.

Drainages vary from steep forested foothill streams in the Ram River drainage to lower gradient streams along the Clearwater River. The Clearwater drainage is characterized by open, grass dominated valley bottoms. Surficial deposits present a low to moderate erosion hazard, although slope steepness and channel and bank instability are concerns, particularly in tributary streams to the North Ram River. Tributary streams to the North Ram River also experience high peak flows. Potential increased water yield resulting from land clearing is a concern in some areas.

Overall, this unit has a moderate to high value for water production. Many of the larger permanent streams have viable sportfish populations. There is a moderate level of off-highway vehicle use with the heaviest use occurring in the Clearwater drainage adjacent to established recreation areas and the Forestry Trunk Road. This has resulted in localized erosion and terrain damage. Localized channel and bank damage resulting from grazing has been identified as a concern along Seven Mile and Elk Creeks.

This large RMA has extensive meadow areas suitable for elk, deer and moose. The current elk population of 250 animals, in particular, is far below traditional levels for this area. To meet the provincial demand, substantial increases in elk numbers in this unit will be necessary. This will require substantial manipulation of several factors affecting elk in this unit (including predation, grazing competition, harassment, hunting and conifer cover). This RMA has extensive grizzly bear habitat and efforts to retain this species at relatively high levels will continue. Wolf densities are currently moderate in this unit. An atypical herd of bighorn sheep uses the Ram Falls area. This RMA also provides convenient access to relatively scarce Harlequin ducks along tributaries to the Ram River.

RMA E: Ram-Clearwater

This RMA has the most diverse and important fisheries in the planning area. The Ram River system has supported an excellent cutthroat fishery, with both the tributaries and the mainstem providing spawning, rearing and overwintering sites. Recent population declines have reduced the quality of this fishery. Tributaries of known importance are Lynx, Kiska, Cripple, Pinto and Easy creeks and the Joyce River. The North Ram River has recently been established as a catch and release fishery. The Clearwater River in this RMA contains good populations of Rocky Mountain whitefish, brown trout and brook trout and moderate populations of bull trout. The Clearwater and its tributaries also support heavy angling pressure within this RMA. Lake fisheries for rainbow and brook trout exist at Peppers and Gap lakes. Stream habitat deterioration has occurred in this unit as a result of access development, overuse of stream banks by domestic livestock and uncontrolled off-highway vehicle use.

This RMA has a high recreational value. Much of the trail use in the adjacent RMA to the west stages from this unit. Recreation facility development is concentrated along the Forestry Trunk Road. Activities include hiking, hunting, fishing, camping, trail riding, snowmobiling and off-highway vehicle use. Localized erosion and terrain damage has resulted from off-highway vehicle use, particularly adjacent to established recreation areas.

A staging area for equestrian/hiking users has been developed on upper Cutoff Creek to facilitate horse and foot travel into the upper Clearwater River drainage. A priority area for the development of a staging area to facilitate back-country use will be adjacent to the North Ram River in the western extent of this RMA. Demand is evident for a campground for equestrian users near the Peppers Lake Forest Recreation Area. There is a large amount of random camping in this unit, particularly along the Clearwater River. Considerable demand for group camping opportunities exists throughout the planning area. This unit has a high potential to support this type of development and currently lacks formal group camp facilities.

There are several natural features in this RMA which attract tourist interest, including Corkscrew Mountain, Ram Falls, a diversity of wildlife and a variety of landscapes associated mainly with the main foothills biogeographic zone.

The ecologically significant area (ESA) along the North Ram River contains diverse plant communities including shrublands, meadows, spruce, aspen, pine and peatlands with high topographical diversity.

RMA E: Ram-Clearwater

The ESA on the Clearwater River includes good examples of a braided river channel and associated vegetation communities.

Archaeological inventories have been limited to energy and highway related developments, but potential is considered high, particularly along the Clearwater and Ram rivers. A large prehistoric quarry complex discovered on Livingstone Mountain suggests that similar bedrock exposures in the region may contain similar resources. There are two known fossil occurrences, with a high likelihood of further occurrences being found.

This RMA falls within the R8 and R9 forest management units. Nearly all of the RMA is also within the Nordegg block of the Brazeau Timber Development Area. To date there has been only a limited amount of harvesting, mostly occurring within the lower Ram River drainage. Most of the RMA is covered by even aged lodgepole pine of fire origin with considerable areas of spruce along river valleys. Many stands, particularly west of the Trunk Road, are overstocked and growing on relatively infertile soils, and consequently may benefit from intensive silvicultural practices such as thinning and fertilization.

Domestic grazing occurs in the Clearwater, Fall Creek, Limestone and Ram River grazing allotments. These allotments combined have a 1977 preference quota of 2 803 AUMs. Several management problems have been identified in this RMA. Distribution problems are occurring in the Ram River Grazing Allotment resulting in localized overutilization. The carrying capacity of the Fall Creek Grazing Allotment has been reduced regularly, largely as a result of succession by woody species. Historically, the Clearwater Grazing Allotment has not been fully utilized. A lack of fire in the allotment has resulted in brush encroachment and litter accumulation, reducing the availability and quality of forage species. There has also been a history of perceived competition between domestic stock and ungulates. A range management plan for the Clearwater Grazing Allotment is essentially complete and will probably be approved in 1986. The Fall Creek Grazing Allotment has a current (1977) range management plan while the Limestone and Ram River grazing allotments require updated plans.

Active exploration for petroleum and natural gas is occurring here and nearly half the RMA has been disposed. Parts of the Phoenix, Ricinus West, Deanne and Limestone fields extend into the RMA. There is minor natural gas production although reserves are substantial. Potential exists for the discovery of petroleum and for production of limestone. Most of the established coal resources and coal reserves of the planning area are found here in the Ram River and Seven Mile Creek

coal fields. Half a billion tonnes of established coal resource occurs here of which the ERCB estimates one third is recoverable by mining under existing conditions. This area has excellent potential for discovery of further coal of metallurgical grade and for greatly expanding the present known reserves.

The Forestry Trunk Road provides the main access through the Ram-Clearwater RMA, supplemented by Secondary Road 752. Several other local gravel and dry weather roads, constructed mainly for industrial purposes, provide access within the RMA.

Resource Management Intent

The general management intent for the Ram-Clearwater RMA is:

> To provide a range of multiple use activities, particularly recreational opportunities, regulated to prevent adverse environmental impacts on the significant watershed, wildlife, fisheries and ecological resources distributed within the RMA.

Revised Eastern Slopes Zoning

The areas in this RMA zoned Prime Protection and Critical Wildlife in the 1977 Zoning have been adjusted to better reflect the landscape, wildlife and fisheries resource values present in these zones. The Prime Protection Zone is now contiguous with the western boundary of the RMA. Since 1977, the General Recreation Zone at Peppers Lake has been reduced to the area of concentrated activity and appropriate physical features. Similarly, the General Recreation Zone along the North Ram and near Ram Falls has been reduced to more appropriate physical features. The Facility Zone at Ram Falls has been replaced by the General Recreation Zone to more closely reflect the intent for the area.

The Multiple Use Zone has been adjusted to reflect watershed, timber and grazing values and changes to other zones. Also, an Industrial Zone designation has been applied to an approved limestone quarry on Corkscrew Mountain.

The revised Eastern Slopes zoning for the Ram-Clearwater RMA is shown on Figure 19. (For comparison to the 1977 zoning, see Figure 10.)

Resource Management Objectives and Guidelines

Table 7.5 contains the resource management objectives and guidelines specific to RMA E, Ram-Clearwater.

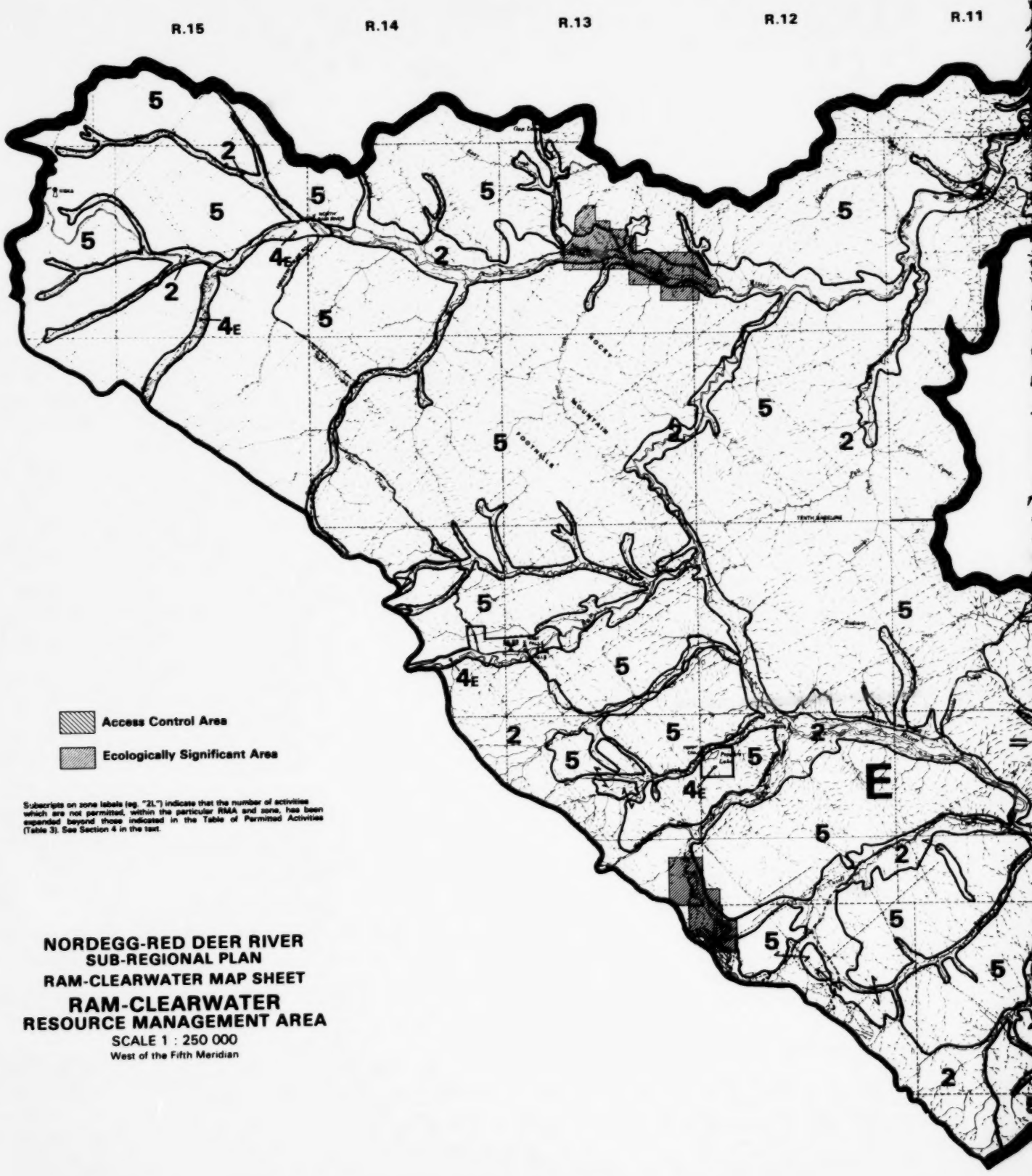
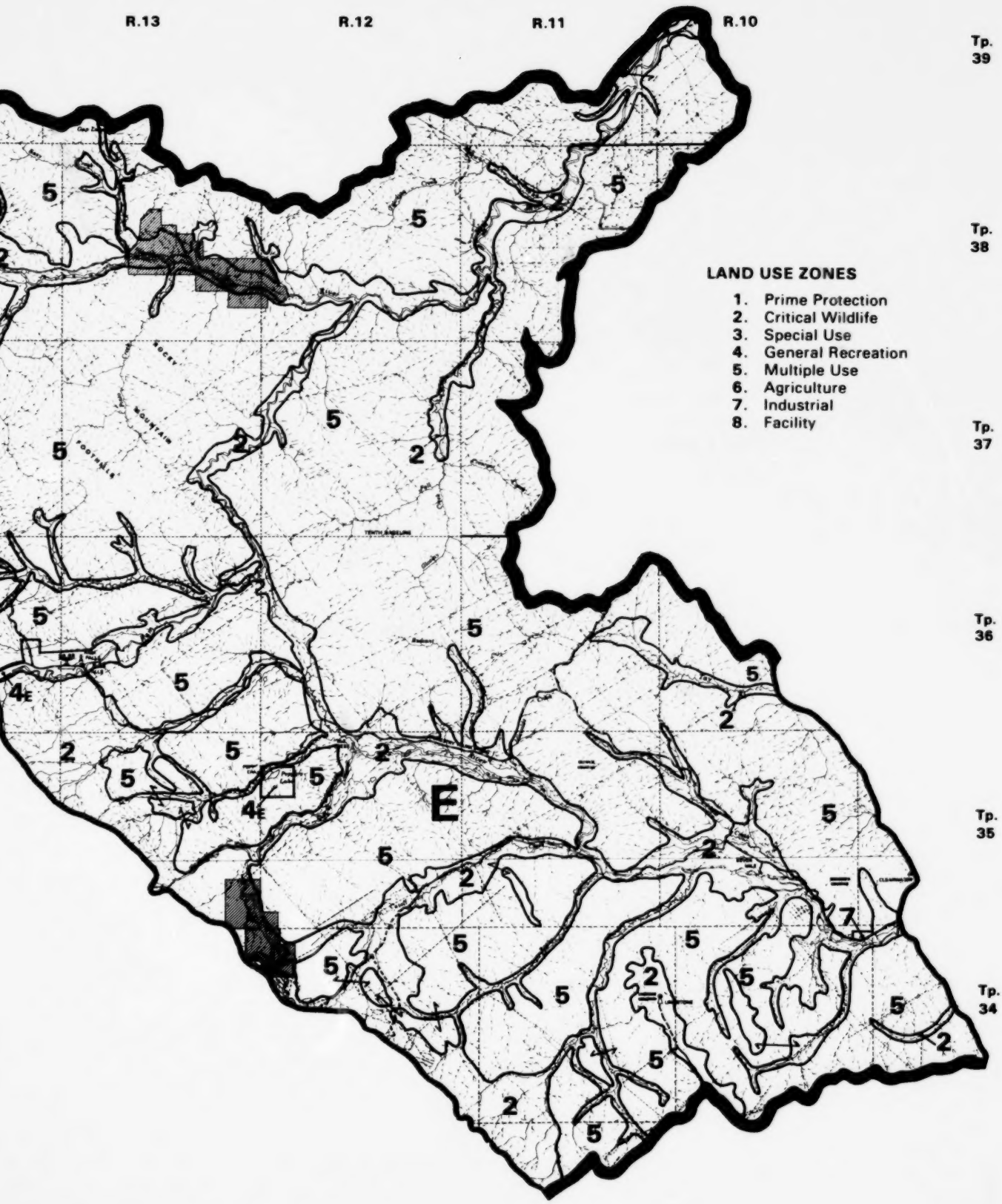

R.15
R.14
R.13
R.12
R.11
Access Control Area
Ecologically Significant Area
Subscripts on zone labels (eg. "2L") indicate that the number of activities which are not permitted, within the particular RMA and zone, has been expanded beyond those indicated in the Table of Permitted Activities (Table 3). See Section 4 in the text.
NORDEGG-RED DEER RIVER
SUB-REGIONAL PLAN
RAM-CLEARWATER MAP SHEET
RAM-CLEARWATER
RESOURCE MANAGEMENT AREA
SCALE 1 : 250 000
West of the Fifth Meridian

Figure 19. RESOURCE MANAGEMENT AREA E: RAM-CLEARWATER



AM-CLEARWATER

Table 7.5

RMA E (RAM-CLEARWATER): OBJECTIVES AND GUIDELINES

Resource Management Objectives	Resource Management Guidelines
Watershed	
To maintain the current high water yield and quality in this RMA.	Land clearing will be controlled to ensure that detrimental changes to watershed conditions do not occur. Surface disturbances will be avoided on steeper and more erosion prone areas of the unit. Better information on the effects of land management on water quality, quantity and timing will be required as the level of resource development increases. More detailed assessment and management of linear developments (particularly in the Ram River drainage) is required. Stream contacts resulting from grazing and recreation activities will be minimized. Management and/or regulation of off-highway vehicle use in specific locations) is required to minimize impacts on water and soil resources.
Wildlife	
To increase populations to 1 000 moose, 1 500 elk, 1 000 mule deer, 30 goats and 20 wolverine. To maintain populations of at least 400 white-tailed deer, 120 bighorn sheep, 25 grizzly bears, 30 cougars, 200 coyotes and 100 black bears. To achieve a population of 10 wolves. To continue to relocate elk into this RMA as stocks become available.	The inherently high potential of this RMA to produce wild ungulates can only be realized if access is managed through a system of physical closures and designated access (e.g., designated vehicle routes). Development of a mosaic of forest cover types suited to wildlife production will be encouraged largely through co-operative planning of timber harvest patterns and methods. Range improvement projects will be used to increase forage production available for ungulates. A variety of methods including prescribed burns will be considered for use in range improvements. Grazing of domestic livestock in this RMA should be carefully regulated to allow for optimal increases in elk numbers. Increases in domestic stocking rates will not occur until the allocation of forage between domestic stock and wildlife has been completed. Any major improvements of the Forestry Trunk Road must consider its relocation off key meadow areas along the Clearwater River where its presence has seriously reduced ungulate populations due to harassment and overharvest. Wolves will be maintained at low densities through commercial trapping, recreational hunting and treaty Indian hunting. Grizzly bear habitat is extensive in this unit and efforts to maintain a stable population will continue. This will require restriction of motorized access in proximity to habitat areas such as denning sites. Conflicts with recreationists will result in bear removal as a last resort. The Clearwater River valley south of Corkscrew Mountain is an important travel corridor for game. To retain this value, industrial and recreational developments in this vicinity will be kept well back from the river, particularly where the valley is narrow. Existing campgrounds at Elk and Seven Mile creeks have high potential to increase wildlife harassment especially if winter uses increase.

Table 7.5

RMA E (RAM-CLEARWATER): OBJECTIVES AND GUIDELINES (Continued)

Wildlife

Resource Management Objectives	Resource Management Guidelines
	Motorized winter recreation activities at these sites will not be encouraged.
	The bighorn sheep population at Ram Falls will be maintained, primarily for viewing.

Fisheries

Resource Management Objectives	Resource Management Guidelines
To protect habitat areas which are important for specific fish populations: a) Overwintering and spawning areas for cutthroat trout in North Ram River, Ram River and Lynx Creek; b) Spawning and overwintering areas for cutthroat trout, bull trout and Rocky Mountain whitefish in the lower Ram River; c) Spawning areas for cutthroat trout in Joyce River, Kiska Creek, Cripple Creek, Pinto Creek and Easy Creek; d) Spawning and overwintering areas for brown and bull trout and Rocky Mountain whitefish in Elk Creek; e) Overwintering areas for bull trout, brook trout, brown trout and Rocky Mountain whitefish in central reaches of the Clearwater River; f) Spawning and overwintering areas in lower reaches of Clearwater River for bull trout, brook trout, brown trout and Rocky Mountain whitefish; g) Spawning and rearing areas for bull trout and brook trout in Cutoff Creek; h) Rocky and Peppers creeks for bull trout; i) Limestone Creek for bull trout and Rocky Mountain whitefish; and j) Fall Creek for Rocky Mountain whitefish, bull trout and cutthroat trout.	Further fisheries survey work is required to locate additional critical habitats and to determine population estimates. This information is necessary to develop management programs and establish further guidelines for protection of fish populations in this RMA.
	Specific angling regulations may be required to ensure the survival of resident sportfish population (e.g., alternate open and closed years; catch-and-release regulations on the North Ram River).
	Additional fisheries will be developed within this RMA to increase angling opportunities and distribute fishing pressure, including development of the Elk Creek Pond.
	Access development will be planned in conjunction with Fish and Wildlife Division to ensure it does not impact important fish habitat, and that crossings are acceptable from a fisheries stand point.
To protect the migratory corridor along the Clearwater River for Rocky Mountain whitefish and bull trout.	Domestic grazing has damaged a number of streams (e.g. Elk and Cutoff creeks) in this unit. Improved livestock management will be encouraged to improve the situation.

Fisheries

Resource Management Objectives	Resource Management Guidelines
To maintain or enhance existing lakes with fish stocking potential (e.g., Peppers Lake).	Limestone extraction at Corkscrew Mountain will occur in a manner that minimizes impacts on streams of the area.
To maintain and/or increase recreational fisheries opportunities assessed through additional surveys of lakes and streams in this planning unit.	
To increase recreational fisheries opportunities by developing new lakes or ponds (e.g., Elk Creek Pond).	
To protect critical habitat on fish bearing creeks, especially Elk and Cutoff creeks.	

Recreation

To provide group camping opportunities.	Present auto access and day-use facilities will be maintained and upgraded as required. No additional development is justified by demand at this time.
To maintain a system of trails and staging areas for equestrian use and summer hiking.	A group camp will be developed adjacent to the Clearwater River.
To protect areas of high recreation potential.	The feasibility of formalizing a campground for equestrian users near the Peppers Lake Forest Recreation Area will be examined.
	The present program of maintaining and upgrading existing and historical pack trails for hiking and equestrian use will continue.
	Motorized winter recreation activities will not be encouraged at the Seven Mile and Elk Creek forest recreation areas.
	Resource extraction, in particular timber harvesting, will be integrated with recreational concerns.

Table 7.5

RMA E (RAM-CLEARWATER): OBJECTIVES AND GUIDELINES (Continued)

Resource Management Objectives	Resource Management Guidelines
Tourism	
To allocate sites to commercial operators for base camps for equestrian activities, particularly along the Clearwater River.	Base camp development will be the responsibility of the commercial operator. The duration of the disposition will be adequate to sustain a viable operation.
To maintain and upgrade facilities at scenic areas along the Forestry Trunk Road (e.g., Ram Falls) which would appeal to the travelling public.	Day-use facilities and viewpoints will be provided, where demand warrants. Proper signing is also needed.
To recognize the Forestry Trunk Road as the focus for touring opportunities within this RMA.	As the Clearwater River is subject to varying flows, overhanging trees, log-jams and shifting channels, use of the river by private recreation craft is not advised.
To provide opportunities for commercial river rafting along the Clearwater River.	Any future facility or commercial development at Ram Falls will be located on the north side of the river.
Ecological and Historical Resources	
To protect representative features of the main foothills biogeographic zone.	The areas of ecological interest may be protected under the Public Lands Act or the Wilderness Areas, Ecological Reserves and Natural Areas Act.
	The Archaeological Survey of Alberta, Resource Management Section will participate in the land use referral process to review proposed developments in the following areas of the RMAs deemed to have historical resource potential: a) Lands adjacent to the North Ram, Tay and Clearwater rivers and their tributaries, Limestone Creek and its tributaries and Limestone Mountain. b) Areas of high palaeontological potential as follows: mountain areas within the Ram Range, and Limestone Mountain. c) For the following areas, Alberta Culture will participate in referrals on projects involving development of a quarter section or more land: lesser tributaries and upland areas to Ram and North Ram Rivers; upland area at confluence of Fall and Crescent creeks; minor tributaries and upland areas to Clearwater River; and minor tributaries to Limestone Creek.
Timber	
To provide a sustained yield of wood fibre.	Operating plans for timber harvesting will take into account the high recreation value and priority of this RMA. Landscape logging will be required.
To apply intensive forest management practices to improve productivity on those lands with low fibre production capability which are within the sustained yield land base.	The successful bidder on the Nordegg block of the Brazeau Timber Development Area will be expected to undertake studies to determine the feasibility of using intensive silvicultural practices to improve wood fibre production on those areas identified with a low wood fibre production potential.
To ensure that future forest harvesting operations do not impair the aesthetic qualities of the unit.	
Range	
To maintain the 1977 preference quota of 2 803 AUMs on the allotments in this RMA.	Updated range management plans are required for the Limestone and Ram River grazing allotments. The Ram River Grazing Allotment has priority because of current distribution and overuse problems. The Limestone Grazing Allotment has priority because of allocation concerns.
To increase the level of management of forage to ensure optimal use of the forage while maintaining good range condition.	The current management practice in the Forest Reserve of maintaining a 50 per cent carry-over of annual forage production for wildlife and maintenance of good range condition will generally be followed.
To provide for increased use of forage by domestic livestock and wildlife through improvement of forage quantity and quality.	The procedure used to allocate forage to domestic stock and ungulates in the Clearwater Grazing Allotment will be applied in other allotments in this RMA. Management techniques will also be reviewed.
To monitor and manage escaped and/or abandoned horses.	

Table 7.5

RMA E (RAM-CLEARWATER): OBJECTIVES AND GUIDELINES (Continued)

Range

Resource Management Objectives	Resource Management Guidelines
	The following guidelines apply to the Clearwater Grazing Allotment: a) the long term priority for forage use in the Cutoff Distribution Unit will be to meet elk population objectives. Cattle grazing of this distribution unit will be allowed on a temporary basis only, i.e., a preference quota will not be established. An annual permit for cattle use will be granted to ensure use of the forage. As elk numbers increase the number of cattle AUMs authorized will decrease proportionately; b) the South Idlewilde Distribution Unit will be managed for elk use only; c) the rest of the Clearwater Grazing Allotment contains ample forage to meet cattle AUM commitments and projected elk population requirements. The surplus in primary range will be made available for cattle use. The surplus in secondary range will be maintained for wildlife; and d) range improvement is required in this allotment to increase the quality of forage available to elk and cattle. The impact of escaped and/or abandoned horses along roads and on rangelands will be minimized through appropriate management practices. The level of forage use by horses being used for recreation on allotments will be monitored.

Minerals

To provide opportunities for industry to develop the petroleum and natural gas reserves of the Limestone, Phoenix, Ricinus West and Deanne fields and to continue exploration in other areas and formations.	*(Zone 4E) Quarriable minerals exploration and development are permitted in the General Recreation Zone (i.e. around Peppers Lake and along the upper North Ram and Ram rivers).

Minerals

Resource Management Objectives	Resource Management Guidelines
To provide opportunities for industry to explore and develop limestone or other quarriable minerals. To provide opportunities for industry to assess and develop the Seven Mile Creek and Ram River coal fields and to explore for other coal deposits.	

Settlement

*(Zone 4E)
No residential development is permitted in the General Recreation Zone (i.e. along the North Ram and Ram rivers and at Peppers Lake).

Access

To maintain and provide appropriate types and amounts of access within this RMA.	Access management (e.g., designated vehicle routes) is required in this RMA. Access development should be co-ordinated to meet a variety of resource management objectives. The Kiska Tower road is a priority for closure and reclamation.

Summary and Implications

Significant economic and social benefits are available from the Ram-Clearwater RMA. These benefits include: water production; hunting, wildlife viewing and trapping; traditional and catch-and-release fishing; a variety of motorized and non-motorized recreation and tourism activities (group camping, auto-access camping, equestrian camping, backcountry camping, hiking, day-use, private and commercial trail riding, expert canoeing, and enjoyment of scenic and ecological features, including Ram Falls); sustained yield wood fibre production; forage production for wildlife and domestic stock; production of petroleum, natural gas and limestone; and potential production of coal.

Management required for this RMA includes: watershed monitoring; regulation of forest management and other resource activities; co-ordinated access planning; access management; habitat enhancement (through timber harvesting and range improvement); development of additional fisheries; group camp development; trail upgrading and maintenance; auto-access campground and day-use facility maintenance; viewpoint development; commercial base camp allocation; sustained yield timber harvesting (with the forest management to include landscape logging and intensive silvicultural techniques); intensive range management; and re-allocation of available forage to wildlife and domestic stock. A procedure to re-allocate forage has been developed for the Clearwater Grazing Allotment. It will also be applied to other grazing allotments within this RMA.

The major management concern within this RMA is the limited capability to control access effectively. The resource values within this RMA cannot be fully realized without management of recreational access and co-ordination of access development. The populations of escaped and/or abandoned horses within this RMA may increase their consumption of available forage, coincident with range improvement, if they are not regulated.

4.6 Resource Management Area F. Headwaters

Description

RMA F consists mainly of alpine and subalpine ecoregion components with minor intrusions of boreal uplands features along the broader valleys. The RMA is bounded along its eastern edge by the edge of Prime Protection in the Ram Range, the most easterly of the Front Ranges. The most western edge of this RMA is contiguous with Siffleur Wilderness and Banff National Park. The headwaters of the Ram and North Ram systems are located within the northern portion of this RMA; the Clearwater River and several of its tributaries are within the southern portion of this unit.

The mountainous alpine and subalpine terrain provides relatively high quantities of clean water for which there is a high downstream demand. There are few watershed concerns in this unit, largely because of the low level of present land use activity. The main land use in this RMA is back-country recreation. Uncontrolled vehicle access and lack of maintenance on roads leading up Skeleton Creek, Onion Creek and Clearwater River have resulted in terrain damage and erosion.

This area is noted for its bighorn sheep and elk production. Bighorn sheep are near carrying capacity but moose, elk and mule deer numbers could be increased substantially. A number of old seismic trails along the Clearwater River and Ram River have provided relatively good vehicular access into remote portions of this RMA. As a result, the more sensitive species (grizzly bear, elk, Rocky Mountain goat) have been reduced in number. Access regulation coupled with lower hunting levels and reduced predator populations should encourage a growth in ungulate populations. Portions of this RMA have potential for range improvement for wild ungulates. Use of prescribed burns, to reduce bush and tree cover on grasslands, would be one method of obtaining increased forage production. Large mammals in this RMA move freely in and out of Banff National Park and thus management programs must consider the needs of that area as well.

The Clearwater River in RMA F supports significant bull trout and Rocky Mountain whitefish populations throughout its length. Critical habitat area for spawning, overwintering and rearing of bull trout and Rocky Mountain whitefish occur within the Clearwater

mainstem; in addition, certain creeks in this RMA are known to be important spawning, rearing, and overwintering sites for bull trout. The Ram River and its tributaries have supported significant cutthroat trout populations and heavy use. Recent population declines have reduced angler success. Spawning and rearing and some overwintering areas occur in Ranger, Onion, Hummingbird and Canary creeks as well as in the Ram River itself. Heavy fishing pressure has substantially reduced bull trout populations throughout much of the RMA. However, permanent closure of some streams and control of access to headwater areas should allow the populations to recover.

This RMA has high potential for dispersed, back-country non-motorized outdoor recreation activities such as hiking, equestrian use, hunting and fishing. Equestrian use is particularly high along the Ram and Clearwater rivers and can be expected to remain high in the future. Due to its location adjacent to Banff National Park and its almost entirely mountainous terrain, this unit has a high esthetic value. Its environmentally sensitive features are better suited to dispersed recreation rather than intensive recreation activities. Commercial trail riding is currently offered by two Class I operators and several permitted operators in the Ram and North Ram River drainages. One Class I commercial trail ride area on the Clearwater River is presently unallocated. A staging area for equestrian/hiking access into the upper Clearwater drainage is located on Cutoff Creek in an adjacent RMA. There is a need for a staging area to facilitate back-country use in the Ram River watershed.

The Clearwater River is considered to have low capability for canoeing and kayaking.

Hummingbird Reef, an exposed Devonian reef, is a significant geological resource.

Although little is known about the archaeological resources in this RMA, the major drainages such as the Clearwater, Ram and North Ram rivers, small lakes, passes and high elevation grasslands all have high potential for prehistoric sites. Three fossil occurrences are known along Onion Creek, and the large number of outcrops in the Front Ranges likely contain many more.

The timber resources in this RMA are generally non-commercial on a sustained yield basis because of the low productivity of the land base. The sensitivity of the terrain also dictates that special techniques be applied where cutting is deemed to be necessary for salvage or sanitation purposes.

There are no grazing dispositions within this RMA. The potential for domestic grazing is generally low and available forage resources are required for wildlife populations. This unit receives moderate to heavy levels of equestrian use. Restrictions are required to limit grazing in the Clearwater River and Ram River drainages and thereby to control equestrian use of forage resources.

No viable mineral deposits are known here. Several wildcat petroleum and natural gas wells, drilled in the area before were dry. Coal exploration drilling occurred prior to 1976. There are no petroleum and natural gas dispositions in this RMA, but there is a small area still under coal lease.

Access into this RMA is limited to a few trails and seismic lines. As motorized vehicle use is generally not compatible with resource values in this RMA, restrictions are required.

Resource Management Intent

The resource management intent for the Headwaters RMA is:

To protect the environmentally sensitive watershed, fisheries, wildlife, ecological and wildland resources while providing the opportunity for high-quality, extensive back-country recreation experiences.

Revised Eastern Slopes Zoning

The vast majority of this RMA is Prime Protection Zone. The exception is a corridor of General Recreation Zone, which extends from Ram Falls to the confluence of Canary and Hummingbird creeks. The revisions to the zoning in this RMA have been based on ecological land classification data and clarification of the acceptable and intended uses of this unit. The revised Eastern Slopes zoning for RMA F (Headwaters) is shown on Figure 20. (For comparison to the 1977 zoning, see Figure 10.)

Resource Management Objectives and Guidelines

Table 7.6 lists the objectives and guidelines specific to RMA F.

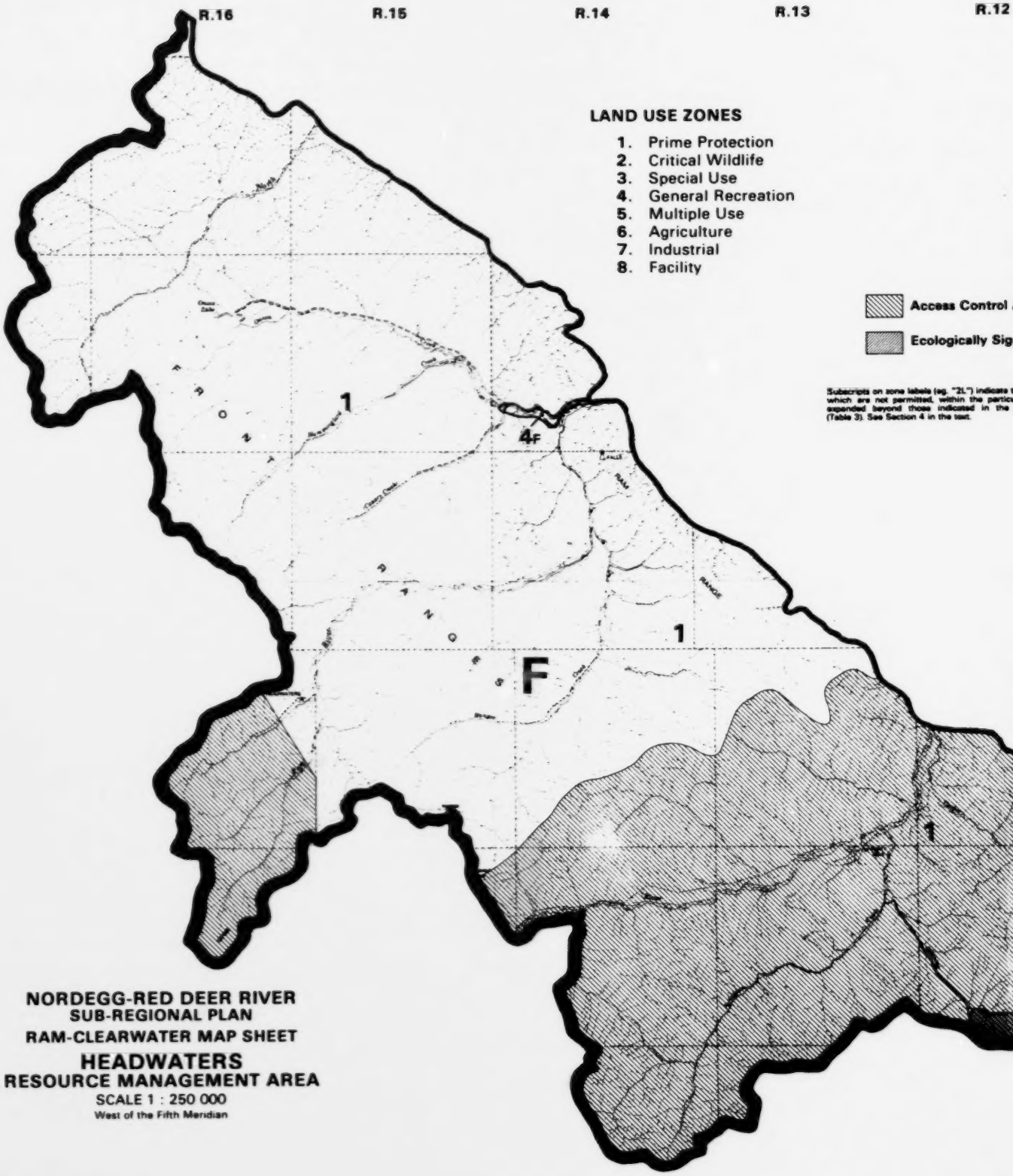
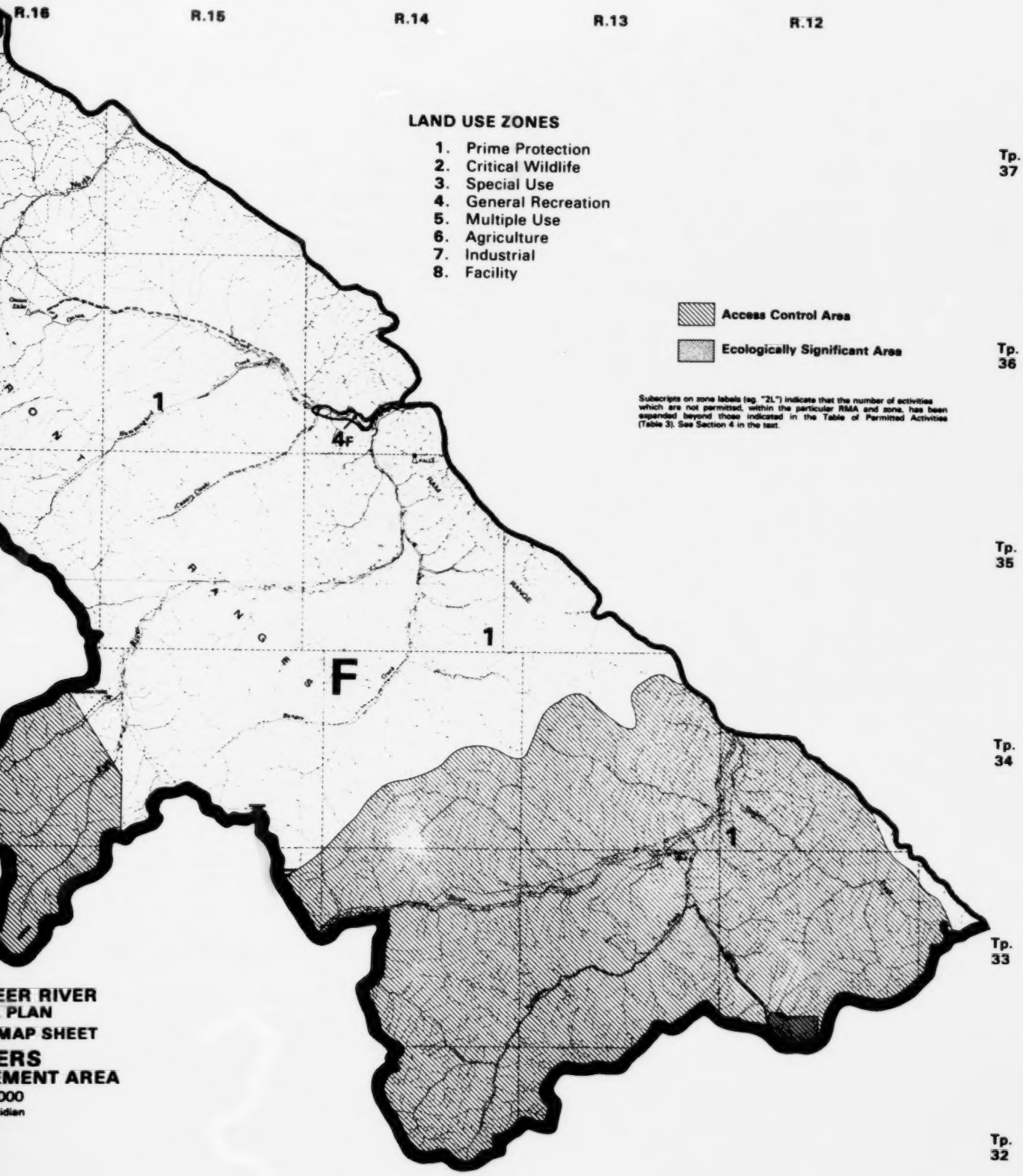


Figure 20. RESOURCE MANAGEMENT AREA F: HEADWATERS



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CE MANAGEMENT AREA F: HEADWATERS

Table 7.6

RMA F (HEADQUARTERS): OBJECTIVES AND GUIDELINES

Watershed

Resource Management Objectives	Resource Management Guidelines
o maintain the current high water quality and yield of this important watershed area.	Better information on the effects of land management on water quality, quantity, and timing will be required in the future.
o protect soil resources and sensitive terrain.	Soil resources and sensitive terrain will be protected by managing recreational uses and methods of access.
	Several truck trails in this back-country unit require closure and reclamation.

Wildlife

o increase populations to 225 moose, 00 elk, 500 mule deer, 120 goats, 25 rizzly and 20 wolverine.	Motorized travel, including off-highway vehicle use, should be restricted in all areas of this RMA outside of the General Recreation Zone to reduce wildlife harassment. Forest land use zone or equivalent regulations are proposed for access control areas within this predominantly Prime Protection RMA to control motorized travel.
o maintain populations of white-tailed eer (200), sheep (900), cougar (20) nd coyote (100).	Recreational horse use will be managed to minimize competition with wildlife (e.g., packing in feed).
o reduce wolves to a low population 10).	Ungulate range improvement will be undertaken as funds become available. A variety of techniques including prescribed burning have potential in this RMA.
o utilize the remote portions of this MA for the release of relocated rizzly bears.	Recreational trail development will be constrained in areas heavily utilized by grizzly bears.

Fisheries

o protect habitat areas which are mportant for specific fish populations:	Further fisheries survey work (involving fish population estimates,

Fisheries

Resource Management Objectives	Resource Management Guidelines
a) Spawning and rearing for bull trout and Rocky Mountain whitefish along the Clearwater River and in certain tributaries; b) Springs flowing into the upper Clearwater River which are critical for spawning, rearing and, in some cases, overwintering of bull trout; c) Spawning and rearing areas for cutthroat trout in Ranger Creek; d) Spawning, rearing and overwintering areas for cutthroat trout in the Ram River and smaller tributary streams; e) Spawning areas for cutthroat trout in Onion, Hummingbird and Canary creeks; and f) Spawning and overwintering areas for cutthroat trout in the South Ram River.	water quality and habitat, specifically identifying key spawning, rearing and overwintering areas) will be undertaken to formulate future fisheries management programs for this area.
	Special angling regulations will regularly be evaluated to ensure long term protection of key fish populations (e.g., bull trout in tributaries of the Clearwater River and cutthroat trout in the Ram system).
	Detailed management plans will be developed for key streams in the RMA.
To maintain and/or increase recreational fisheries opportunities by developing new lakes (e.g., with weirs) or enhancing existing lakes with fisheries potential (e.g., Lost Guide Lake).	Additional fisheries will be developed to increase angling opportunities by distributing fishing pressure and increasing diversity of fishing in the unit.
To protect specific sensitive fish habitats and populations from the impacts of unregulated off-highway vehicle use and overfishing.	Restriction of off-highway vehicle use in the Prime Protection Zone will be required to minimize impacts on sensitive headwater fish populations.
	Fish and Wildlife Division and the Alberta Forest Service may undertake a co-operative program to identify and reclaim access trails which are contributing to erosion and sedimentation problems in this unit.

Recreation

To provide and maintain non-motorized back-country recreational opportunities for both public and commercial users.	Maintenance and upgrading of historic and existing non-motorized trails will continue. A minimum of 40 km (25 mi.) of additional trails will be upgraded within this RMA.
To provide non-motorized recreational opportunities through reclamation of existing motorized access.	A staging area will be developed at the confluence of Canary and Hummingbird creeks for equestrian and hiking users in the Ram River drainage.

Table 7.6

RMA F (HEADWATERS): OBJECTIVES AND GUIDELINES (Continued)

Recreation

Resource Management Objectives	Resource Management Guidelines
	Auto-access facilities will not be developed in this unit with the exception of the staging area to be developed at the confluence of Canary and Hummingbird creeks. Recreation trail development within this unit will occur in cooperation with Banff National Park. Reclamation of access will be co-ordinated with involved agencies.

Tourism

To maintain opportunities for commercial trail riding, outfitting and guiding operations. To allocate sites to commercial trail ride operators for base camps. To maintain access for the travelling public to Hummingbird Falls.	Base camp development will be the responsibility of the commercial operator. The duration of the disposition will be adequate to sustain a viable operation. Base camps for commercial operations within this RMA will be located in the General Recreation Zone or in the adjacent RMA. However, backcountry overnight camps will be allowed in this RMA. Access by gravel road and appropriate signing to Hummingbird Falls should be maintained to allow the public to visit this site in the summer months.

Ecological and Historical Resources

To protect unique geological resources and representative ecological resources within the subalpine biogeographic zone.	The areas of ecological and geological interest are located within the Prime Protection Zone. The Archaeological Survey of Alberta, Resource Management Section will participate in the land use referral process to review proposed developments in the following areas of the RMAs deemed to have historical resource potential: a) Lands adjacent to the Ram River. Other areas of interest are in the Prime Protection Zone.

Timber

Resource Management Objectives	Resource Management Guidelines
To manage the forest resources with emphasis on protection from fire, insects and disease through established programs including sanitation logging.	Should sanitation logging become necessary, operating plans will reflect the high watershed, recreation and wildlife values of this RMA and all surface disturbances will be promptly reclaimed.

Range

To maintain and where necessary improve range condition in this back-country RMA.	Methods of monitoring and managing equestrian use of forage resources will be examined. A range survey is required of forage resources in this back-country unit to determine present and allowable levels of equestrian use of forage resources. Restrictions on the level and distribution of equestrian use within this RMA will be applied through the Public Lands Act and forest land use zone or equivalent regulations proposed for the Clearwater River drainage and the Headwaters Cabin area.

Minerals

*(Zone 4F)
No mineral resource activity is permitted within this RMA.

Settlement

*(Zone 4F)
No residential development is permitted in this RMA.

Access

To provide access appropriate to non-motorized back-country recreational activities, including reclamation of existing motorized access.	Access development will occur according to the above guidelines for watershed, wildlife, fisheries, recreation, timber and range.

Table 7.6

RMA F (HEADWATERS): OBJECTIVES AND GUIDELINES

Access

Resource Management Objectives	Resource Management Guidelines
	Restrictions on motorized uses in the Clearwater River and Ram River drainages will be applied through proposed forest land use zone and forest recreation trail or equivalent regulations. Within access control areas, reclamation of trails may be to a standard that allows passage by horse-drawn carts for packing in feed.

Summary and Implications

The economic and social benefits of significance within the Headwaters RMA include: production of water; hunting, trapping and fishing; hiking, day-use and back-country camping; commercial and private trail riding, outfitting and guiding; and viewing of scenic and ecological features.

Management required within this RMA includes: hunting regulations, and forest land use zone and forest recreation trail or equivalent regulations to control access; reclamation of access; watershed monitoring; habitat enhancement; release of problem grizzly bears; staging area and trail development and maintenance; back-country campsite development and maintenance, maintenance of public access (to Hummingbird Falls); allocation of the remaining single operator area and base camps to commercial equestrian operators; protective management of the forest resources; and monitoring of the equestrian use of forage resources.

4.7 Resource Management Area G: Whiterabbit Creek

Description

RMA G consists mainly of alpine and subalpine features, with various components of the montane and boreal uplands ecoregions adjacent to Abraham Lake and the North Saskatchewan River. The main watercourses within this unit are Whiterabbit Creek and a lower reach of the Siffleur River. Banff National Park and Siffleur Wilderness bound this RMA on its most western and southern extent.

The RMA produces relatively high quantities of clean water from a number of alpine streams which are subject to high peak flows. The only land use currently occurring in this RMA is backcountry recreation. Equestrian use has resulted in some terrain damage and gulleying in alpine meadows near the divide between Whiterabbit Creek and Ram River. The amount of disturbance is relatively low and there has been little effect on water quality.

Bighorn sheep are the most abundant and heavily used wildlife species in the RMA. Elk, moose and deer are all present, but numbers are well below their carrying capacity. These latter species will be encouraged to increase through a variety of mechanisms. Rocky Mountain goat habitat is good in this area and it is expected that previously low populations will increase substantially. Caribou previously occurred in this unit but now appear to be absent, likely because of past hunting pressure and naturally low populations in the region. Grizzly bears are also common in this area and will be maintained, as conflicts with recreation users are rare.

Fisheries information for this unit is limited. It is known that bull trout inhabit the lower reaches of Whiterabbit Creek. Little information is available on spawning, rearing or overwintering sites within the waters of the unit. Fish populations presently receive light use, but because of their high susceptibility to overharvest, they cannot tolerate much angling pressure.

This unit has a moderate to high potential for dispersed backcountry recreation activities and supports a moderate level of recreation use including horseback riding, hunting, fishing and hiking. The Headwaters Trail, originating in RMA K (Nordegg), and the Whiterabbit Trail, originating in RMA H (Kootenay Plains), pass through the

Whiterabbit Creek RMA. These trails connect with the trail systems of the North Ram and Ram river drainages, respectively. A hiking trail, also originating in RMA H, leads to Siffleur Falls. There are no developed facilities in this RMA. The terrain and access are appropriate for dispersed recreational activities. Including a portion of this RMA, the area between the Siffleur and White Goat wilderness areas has potential for park or recreation area development.

The small Cline Natural Area contains stands of Douglas fir, the modal vegetation for the montane biogeographic zone, and a high plant species diversity within a small area.

Archaeological resources are totally unknown, but Whiterabbit Creek and the pass leading into the Ram River basin are considered to have high potential for the discovery of historical resource sites.

The timber resources in this RMA are generally non-commercial on a sustained yield basis due to the low productivity of the land base. Minor amounts of sanitation harvesting have occurred in this unit.

As most of this RMA falls within the subalpine and alpine eco-regions, it has low potential for domestic grazing. It does receive a high level of equestrian use. Areas that do contain forage are required for existing wildlife populations.

There are no known economically viable deposits of mineral resources or mineral production.

A limited amount of motorized activity by off-highway vehicles occurs adjacent to the North Saskatchewan River, Kootenay Plains and Abraham Lake.

Resource Management Intent

The general resource management intent for the Whiterabbit Creek RMA is:

> To protect the environmentally sensitive watershed, wildlife and wildland resources while providing the opportunity for high-quality, extensive back-country experiences.

Revised Eastern Slopes Zoning

As shown on Figure 21, the 1983 Eastern Slopes zoning for the Whiterabbit Creek RMA is entirely Prime Protection Zone. Any refinements to the 1977 zoning were based on the RMAs resource values and the acceptable uses of those resources. (See Figure 11 for a comparison to the 1977 zoning.)

Resource Management Objectives and Guidelines

Table 7.7 summarizes the objectives and guidelines specific to RMA G.

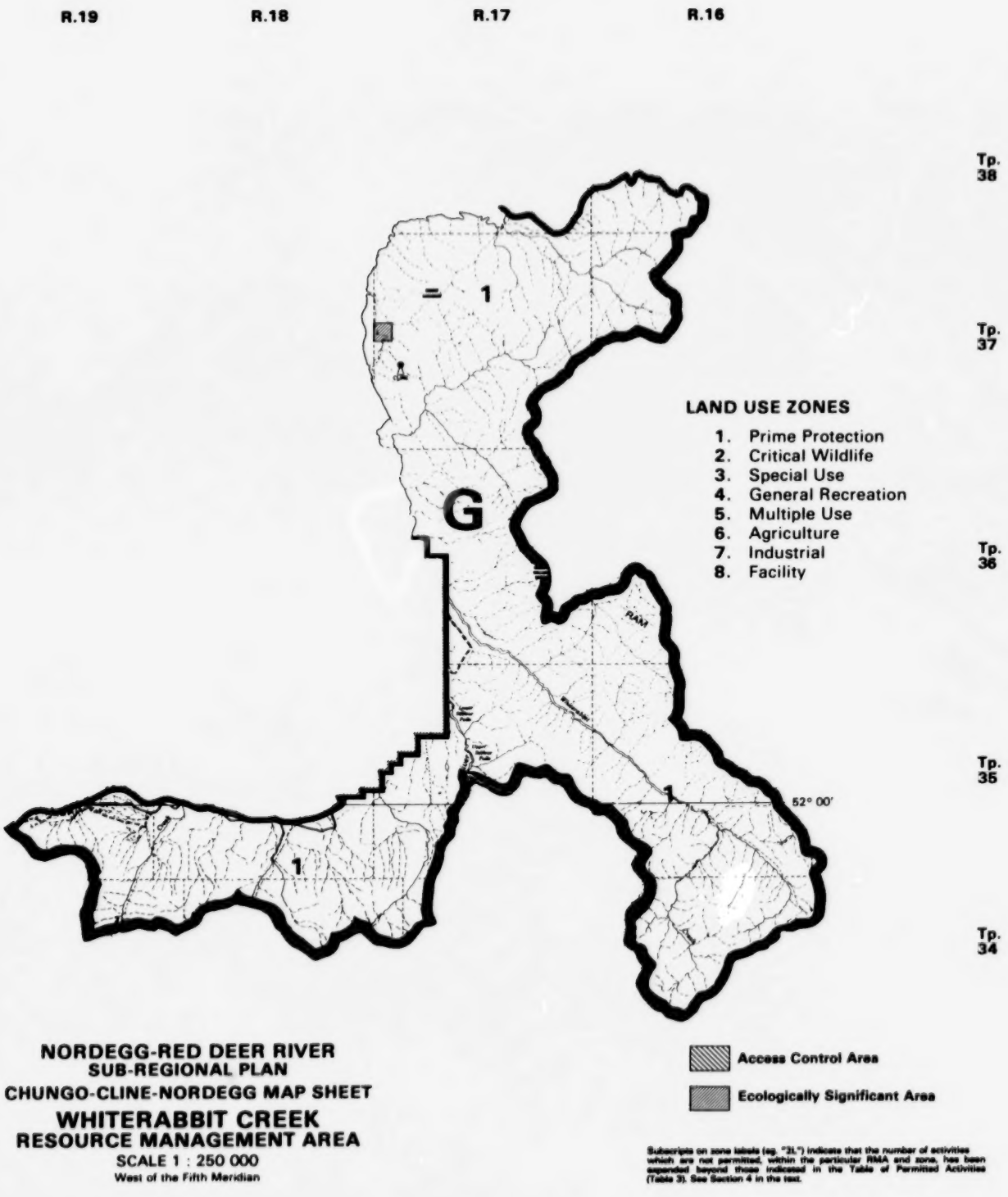


Figure 21. RESOURCE MANAGEMENT AREA G: WHITERABBIT CREEK

Table 7.7

RMA G (WHITERABBIT CREEK): OBJECTIVES AND GUIDELINES

Watershed

Resource Management Objectives	Resource Management Guidelines
To protect the sensitive soil resources in this RMA by minimizing the effects of back-country recreational use.	This unit will have a lower priority for active watershed management programs than units further east because of its protective zoning and the resultant low level of land use activity.
To minimize the effect of back-country recreation use on the sensitive soil resources and to repair and reclaim damaged sites.	Upgrading and maintenance are required on portions of the trails.

Wildlife

To increase populations to 100 moose, 120 elk, 150 mule deer, 70 goat, eight grizzly and eight wolverine.	Range improvement should be conducted in this RMA to increase available winter forage. Prescribed burns would appear to be the most suitable tool for conducting such improvement.
To maintain populations of white-tailed deer (40), sheep (130), black bear (20), cougar (8), wolf (8) and coyote (30).	Caribou will be encouraged to re-establish in this area through relocation, subject to a positive feasibility study, if stocks become available.
To re-establish mountain caribou (50).	The Whiterabbit Creek drainage will be used as a relocation site for grizzly bears removed from more populated areas.
	Recreational trail development will be co-ordinated with Fish and Wildlife Division to ensure that sites with high potential for bear conflicts are avoided.

Fisheries

To maintain bull trout and Rocky Mountain whitefish in Whiterabbit Creek and the lower Siffleur River.	Further fisheries survey work will be undertaken to identify key spawning, overwintering and rearing areas.

Fisheries

Resource Management Objectives	Resource Management Guidelines
	Special angling regulations will likely be required to ensure the survival of naturally reproducing resident sportfish populations.
	Recreational use in this area requires monitoring to ensure that trails are not contributing to sedimentation of watercourses.

Recreation

To provide and maintain back-country recreation opportunities with the major emphasis on hiking, horseback riding and similar dispersed non-motorized activities.	Upgrading and maintenance of historical and existing non-motorized trails will continue. A minimum of 20 km (12 mi.) of the Whiterabbit Trail will be upgraded.
	Facility development will be restricted to primitive campsite construction in conjunction with trail improvements.

Tourism

To allow opportunities for commercial trail riding in this RMA.	Any staging area for commercial hiking would be located in RMA H (Kootenay Plains). No permanent structures will be considered for this activity at this time.
To allow opportunities for commercial hiking in this back-country RMA and in the adjacent Siffleur Wilderness.	
To maintain opportunities for viewing Siffleur Falls.	

Ecological Resources

To retain the Cline site as a Natural Area and International Biological Program site.	The reservation for this site will be retained.

Table 7.7

RMA G (WHITERABBIT CREEK): OBJECTIVES AND GUIDELINES (Continued)

Timber

Resource Management Objectives	Resource Management Guidelines
To manage the forest resources with emphasis on protection from fire, insects and disease through established programs including sanitation logging.	Should further sanitation logging become necessary, operating plans will reflect the high watershed, recreation and wildlife values and all surface disturbances will be reclaimed promptly.

Range

To maintain and where necessary improve range condition in this back-country RMA.	This unit will have the fourth highest priority for back-country range surveys. These surveys are required to determine present and allowable levels of equestrian use and to ensure that good range condition is maintained.

Minerals

	No mineral resource activity is permitted.

Access

To maintain appropriate levels of non-motorized access within this back-country RMA.	Existing and proposed forest recreation trail regulations in this RMA and other restrictions in adjacent RMA H (Kootenay Plains) will effectively stop off-highway vehicles entering this back-country unit.

Summary and Implications

The economic and social benefits of significance to be attained within the Whiterabbit Creek RMA include: production of water; hunting, trapping and fishing; public and commercial hiking and back-country camping; commercial and public equestrian activities, including trail riding, outfitting and guiding; and viewing of scenic and ecological resources, including Siffleur Falls.

Management required within this RMA includes: forest recreation trail and hunting regulations, habitat enhancement, stocking of caribou, monitoring of equestrian use of trails and forage, trail maintenance, development of back-country campsites, maintenance of a land base for future park or recreation area development, and protective management of the forest resources.

Regulation of motorized access in RMA H (Kootenay Plains) will effectively aid the achievement of the desired resource management objectives in this RMA.

4.8 Resource Management Area H: Kootenay Plains

RMA H comprises montane and boreal uplands features, adjacent to the North Saskatchewan River and Abraham Lake. The level of Abraham Lake is regulated by the Big Horn Dam. Other waterbodies included within this unit are the lower reaches of the Siffleur and Cline rivers and other streams. The David Thompson Highway (Highway 11) runs along the west side of Abraham Lake, along the north side of the North Saskatchewan River and into Banff National Park to join the Icefields Parkway (Highway 93).

There are few watershed concerns in this RMA. Surficial deposits are usually coarse and relatively stable, representing a low erosion hazard. The exception is the Kootenay Plains area where aeolian deposits are susceptible to terrain damage and are slow to recover from disturbance. Overall, the development that has occurred in this unit has resulted in only minor erosion problems and little watershed deterioration. Any further developments within this corridor will require careful planning so that water quality deterioration does not occur. As the headwaters of most streams within this unit are within the alpine ecoregion (i.e. portions of adjacent RMAs G, I and J), these streams are subject to high peak flows.

This area traditionally wintered large numbers of elk, deer and bighorn sheep. Lake Abraham inundated much of the winter grasslands and David Thompson Highway now crosses a major portion of the remainder. This has resulted in year-round harassment of the wildlife by motorized vehicles and hunters. These factors plus intensive summer recreational use result in avoidance of the area to a large extent by most wildlife. Bighorn sheep occur at Whirlpool and Windy Points where they provide a considerable amount of non-consumptive enjoyment. Bears are common in the area resulting in some problems for campers.

The fisheries of this RMA are limited by the low productivity of the cold, often turbid waters in the unit. The major sport species present are bull trout and Rocky Mountain whitefish. These two species as well as limited numbers of rainbow trout, lake trout and cutthroat trout are present in Abraham Lake and the Saskatchewan river upstream. Tributary streams such as the Cline and Siffleur rivers and Whiterabbit and Allstones creeks likely provide the only suitable spawning and rearing areas for fish inhabiting the reservoir, hence these areas are

critical for maintaining populations within the RMA. Owing to the reservoir's turbidity, size and wind swept nature, Abraham Lake itself does not have much potential as a major lake fishery.

This RMA has a variety of unique features (e.g., Kootenay Plains, Abraham Lake, Whirlpool Point) and mountain scenery (e.g., Mount Michener) that gives the unit high recreational value. Many access points for trails leading to popular back-country destinations are located in this unit. Random camping use along the David Thompson Highway corridor is high and has resulted in terrain damage within the Kootenay Plains; this problem is being reduced through fencing, rock barriers, legislation and more active enforcement. Current summer recreational use of this unit is high, and demand is expected to remain constant with no significant increase in the near future. Including a portion of this RMA, the area between the Siffleur and White Goat wilderness areas has potential for park or recreation area development.

The David Thompson Resort currently provides the only services in the RMA, including camping and fixed roof accommodation, food, groceries and automotive services.

The 28 km^2 (10.8 sq. mi.) ecologically significant area in the Kootenay Plains is a major component of this RMA. The site includes good representation of the typical features and landscapes found in the montane biogeographic zone as well as a number of unique and unusual vegetational, geological and historic features.

The range of plant communities within the Kootenay Plains site includes grasslands, savannah, wetlands, extensive aspen, floodplain vegetation, Douglas fir, limber pine, large old white spruce, willow and birch fens, as well as a number of rare plant species. The site's geologic features include aeolian landforms, ridges, kettle holes, ice stagnation topography, drumlins, a glacial spillway, springs, cliffs and hanging ice.

The RMA contains the highest number of known archaeological sites in the region, many of them having been discovered prior to the construction of the Big Horn Dam. Campsites, workshops, kill sites and ceremonial sites have been recorded. Based on the distribution of these sites it is apparent that the benches and terraces along the North Saskatchewan River are of very high potential.

A number of historical sites have been located throughout the RMA. The features of interest include Barnes Ranch, log cabins erected by Stoney Indians, gravesites and a number of smaller features. The 511 ha (1 278 a.) gravesite exchange lands (Order-in-Council 772/82) are of cultural and religious significance to the Stoney Indians.

Timber resources are generally non-commercial on a sustained yield basis. Logging may not be compatible with the high aesthetic values of this RMA.

The only significant area with grazing potential within RMA H is on the Kootenay Plains where domestic grazing is generally not permitted. Limited grazing occurs in conjunction with trail riding activities, particularly at staging areas.

There are no known viable deposits of mineral resources and no mineral production within the RMA. However, petroleum and natural gas dispositions overlap this RMA at the north end of Abraham Lake.

Resource Management Intent

The general resource management intent for the Kootenay Plains RMA is:

> To protect the ecological and cultural resource values of the Kootenay Plains while providing for a limited range of tourism and recreation opportunities along the David Thompson Highway.

Revised Eastern Slopes Zoning

Figure 22 illustrates the revised Eastern Slopes zoning for RMA H (Kootenay Plains). The zoning scheme consists of Prime Protection (Zone 1) for the ecological resources and Special Use (Zone 3) for the cultural resources of the Kootenay Plains, General Recreation (Zone 4) for most of the corridor and Facility (Zone 8) for the David Thompson Resort area. The refinements to the 1977 zoning were based on resource values and ecological land classification criteria. For a comparison to the 1977 zoning, see Figure 11.

Resource Management Objectives and Guidelines

The objectives and guidelines specific to the Kootenay Plains RMA are summarized in Table 7.8.

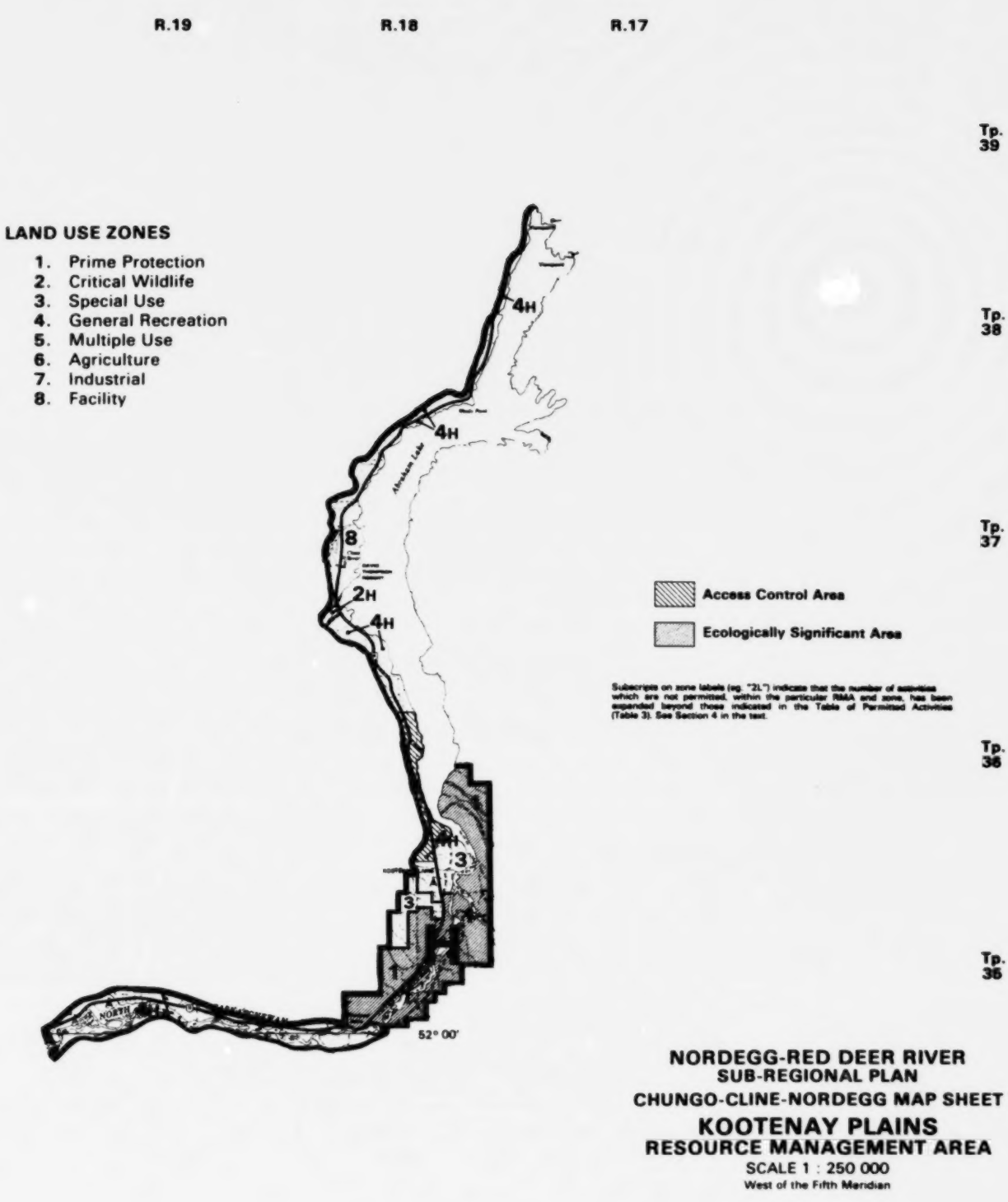


Figure 22. RESOURCE MANAGEMENT AREA H: KOOTENEY PLAINS

Table 7.8

RMA H (KOOTENAY PLAINS): OBJECTIVES AND GUIDELINES

Watershed

Resource Management Objectives	Resource Management Guidelines
To maintain the quality, quantity and timing of water resources by ensuring that future developments do not impair these values. To protect the sensitive soil resources of the RMA.	At present there is one watershed monitoring site in this unit which will provide information on alpine and subalpine streams. It is not anticipated that any additional sites will be required. Regulations, such as forest land use zone and natural area regulations, are required for the Kootenay Plains, to protect the sensitive soil resources of this area effectively.

Wildlife

To increase populations to 20 moose, 80 elk, 50 mule deer and 2 wolverine. To maintain white-tailed deer (20), black bear (5), grizzly (2), cougar (2), wolf (2) and coyote (15). To re-establish viable populations of river otter and peregrine falcon, subject to a positive feasibility study, when stocks become available. To maintain herds of bighorn sheep at Whirlpool Point and Windy Point for viewing purposes. To minimize bear-human conflicts without extirpating the bears in this RMA or adjacent units.	Maintenance of ungulates in this area will be difficult due to the presence of the David Thompson Highway and unregulated hunting pressures. Regulations will be applied to restrict hunting in most of this RMA. Wolves will be kept at low densities by continued trapping. Sheep at Whirlpool Point and Windy Point will be maintained and road kills will be reduced as much as possible. Bear conflicts may result in removal of bears but efforts to improve garbage handling and human behavior will continue.

Fisheries

To protect habitat areas and maintain water quality parameters which are important for fish populations: a) Rocky Mountain whitefish, lake trout and bull trout in the North Saskatchewan River; and b) Rocky Mountain whitefish and bull trout present in lower Whiterabbit Creek and Siffleur and Cline rivers.	Due to the importance of the lower sections of the tributaries of the North Saskatchewan River for spawning and rearing of sportfish, stringent development restrictions will be applied in the vicinity of these watercourses to prevent degradation of water quality and habitat.

Fisheries

Resource Management Objectives	Resource Management Guidelines
To maintain and where possible enhance natural reproducing game fish populations by protecting critical spawning and rearing areas, thereby providing optimum recreational use.	Owing to the low productivity of these waters and the susceptibility of bull trout to overharvest, special angling restrictions, shorter seasons, various catch restrictions, etc. will likely be required to ensure the long-term survival of resident populations. The potential for put-and-take fishery development will be assessed along the David Thompson Highway west of the Big Horn Dam site.

Recreation

To provide a variety of outdoor recreation opportunities and facilities along this portion of the David Thompson Highway corridor, including: a) staging access for dispersed back-country use originating within this unit; and b) auto-access, day-use, and group camping and interpretative facilities. To monitor the need for further recreational facility development within this RMA. To manage the Kootenay Plains in a manner that will minimize or eliminate environmental damage and degradation.	A formal staging area will be established on the north side of the Cline River to service the Coral Creek/Job Lake Trail. Use of the Kootenay Plains will be determined by the management plan and regulations to be developed. Present auto-access, day-use and group camp facilities will be maintained and upgraded as required. Visitor use of the forest recreation areas within the unit will continue to be monitored on an on-going basis to determine the need for further facility development or expansion. Additional staging areas to facilitate back-country use by hikers and equestrian users will be upgraded and developed.

Table 7.8

RMA H (KOOTENAY PLAINS): OBJECTIVES AND GUIDELINES (Continued)

Resource Management Objectives	Resource Management Guidelines
Recreation	
	* (Zone 2H) Serviced camping will not be permitted in the Critical Wildlife Zone in this RMA (at the mouth of the Cline River).
Tourism	
To encourage the maintenance and provision of commercial facilities and services along the David Thompson Highway for recreational users and tourists.	Existing commercial facilities and services should be maintained and upgraded by the private sector, as demand dictates, to serve RMA users and the travelling public.
To ensure access to the North Saskatchewan River to facilitate commercial operations related to canoeing and kayaking as well as scenic enjoyment.	New commercial facilities and services to be developed within this RMA could include a destination resort at the Cline River. Access points for water-based activities on the North Saskatchewan River will be shared by commercial users and the public.
Ecological and Historical Resources	
To protect the ecological resources of the Kootenay Plains. To protect the cultural and historical resources located along the David Thompson Highway in this RMA.	A management plan will be prepared for the Kootenay Plains ecologically significant area to determine its acceptable uses. Regulations will be written for the Kootenay Plains ecologically significant area under the Wilderness Areas Ecological Reserves and Natural Areas Act or other legislation. Uses to be restricted include motorized access, hunting, grazing and recreation. Forest land use zone or equivalent regulations proposed for the area indicated as "access control area" on the maps will restrict motorized access to the Kootenay Plains.
Ecological and Historical Resources	
	The existing reservation for the Kootenay Plains site will be retained until the status of the ecologically significant area is determined and designated. Visitor services and information will be provided to allow the general public to use the ecologically significant area in an appropriate manner. Completion of an order-in-council by the federal government is required to complete the designation of the Indian gravesite exchange lands. The Archaeological Survey of Alberta, Resource Management Section will participate in the land use referral process to review proposed developments in the following areas of the RMAs deemed to have historical resource potential: a) Lands adjacent to the Cline and North Saskatchewan rivers, and Whitegoat Lakes. Other areas of interest are in the Prime Protection and Special use zones.
Timber	
To manage the forest resources with emphasis on protection from fire, insects and disease through established programs including sanitation logging.	Forest management in this RMA will not be on a sustained yield basis. Should sanitation logging become necessary, operating plans will reflect the high watershed, recreation and wildlife values of this unit and all surface disturbances will be reclaimed promptly.
Range	
To maintain and where necessary improve range conditions in this RMA.	Regulations for the Kootenay Plains ecologically significant area and the access control area will protect the forage resources in this RMA.

Table 7.8

RMA H (KOOTENAY PLAINS): OBJECTIVES AND GUIDELINES (Continued)

Minerals

Resource Management Objectives	Resource Management Guidelines
To maintain opportunities to extract sand and gravel resources on a limited basis.	*(Zones 2H, 4H) No mineral activity, with the exception of sand and gravel extraction, will be allowed because of recreational values, ecological values and other special uses.

Settlement

	* (Zone 4H) Residential development will not be permitted in the General Recreation Zone.

Access

To maintain appropriate types and levels of access.	Controls and enforcement under the appropriate legislation will serve to restrict motorized access within the RMA and into adjacent RMAs (in particular G, I and J).

Summary and Implications

The Kootenay Plains RMA contains resource values capable of providing significant economic and social benefits. These include: hydroelectric power production; wildlife viewing, hunting, trapping and fishing; staging for commercial and private equestrian use; staging for hiking and back-country camping; staging for helicopter use; auto-access and group camping; day-use and interpretive activities; destination resort opportunities, commercial accommodation, camping and related services; commercial and private water- based activities (on the North Saskatchewan River); and enjoyment of scenic and ecological features (including the Kootenay Plains, Abraham Lake and Whirlpool Point).

Management required includes: forest land use zone and forest recreation trail or equivalent regulations; watershed monitoring; hunting restrictions; stocking of river otters and peregrine falcons; management of human-animal conflicts (including campground depredation by bears and vehicle collisions with bighorn sheep and escaped and/or abandoned horses); assessment of put-and-take fisheries development potential; staging area development for hikers, helicopter and equestrian users; maintenance of group camping, auto-access camping and day-use facilities; maintenance of a land base for future park or recreation area developments; development of access for water-based activities on the North Saskatchewan River; protective regulation of the Kootenay Plains; development of a management plan and regulations for the ecologically significant area in the Kootenay Plains, development of interpretive and visitor services facilities for the Kootenay Plains; protective management of the cultural and historical resources within the RMA; protective management of the forest resources; and disposition of lands for limited sand and gravel extraction.

The significant resource values within this RMA cannot be met without regulating recreational uses, including motorized access, random camping and horse use. The mechanisms to regulate access (and to achieve other purposes) may include: hunting regulations, forest land use zone regulations, forest recreation trail regulations and natural area regulations. These mechanisms are required to successfully integrate the types and amounts of public and private development existing or proposed within this RMA.

4.9 Resource Management Area I: Cline River

Description

This RMA consists mainly of alpine ecoregion components with lesser areas of subalpine, montane and boreal uplands features. The major waterbodies within the RMA are Cline River (which serves as the southern boundary of White Goat Wilderness), Lake of Falls, Landslide and Pinto lakes. The western boundary of this unit is contiguous with Banff National Park.

Streams generally have a high gradient and provide relatively large quantities of clean water. Water quality and erosion problems have been minimal because of the low level of land use activity. Some terrain damage and gulleying have occurred as a result of heavy equestrian use in alpine passes and in the vicinity of popular high mountain lakes. Access by off-highway vehicles and helicopters has been identified as a potential concern.

Restrictions proposed in the vicinity of Pinto Lake and the headwaters of Shoe Leather and Entry creeks (surrounding Lake of Falls and Landslide Lake) should serve to alleviate the access concerns and the overgrazing and terrain damage which has recently occurred at these locations.

Bighorn sheep and Rocky Mountain goats are the primary wildlife species in this very rugged RMA. Sheep populations are near carrying capacity, but goat populations could be increased several fold. Caribou occur here in very small numbers; the population will be encouraged to increase through careful protection. Potential for range improvement for wild ungulates is limited but the possibility of enhancing forage production through use of prescribed burns exists. Access into the RMA is primitive at present, which is important in reducing conflicts with grizzly bears and in reducing competition for very limited forage resources.

Fisheries in this RMA are primarily in high mountain lakes with the exception of bull trout and Rocky Mountain whitefish populations in the Cline River. Pinto Lake supports a native bull trout population which extends downstream along the upper reaches of the Cline River. Michelle Lakes contain stocked golden trout populations while Landslide Lake and Lake of Falls support stocked cutthroat populations. Access

to these fisheries is primarily by means of equestrian and pedestrian traffic, but some helicopter access also occurs. Careful control of harvest from these lakes is required since they cannot tolerate heavy fishing pressure.

RMA I has a high potential for dispersed back-country recreation activities. Rugged mountain scenery, high mountain fisheries and hunting opportunities have resulted in heavy use by equestrian users and hikers. Lake of Falls, Landslide Lake and Pinto Lake are popular fisheries for equestrian users and hikers. Heavy back-country use has resulted in a need for increased monitoring, maintenance and upgrading of the trail system. Development of the Cline River resort complex may also increase back-country use in this RMA. The area between the Siffleur and White Goat wilderness areas, including this RMA, has potential for park or recreation area development.

The Wapateehk Canyon (Landslide Lake) Natural Area is located in this RMA. Its main features are Landslide Lake, the rock slide which created the lake and the attractive glaciated valley with its steep slopes and alpine vegetation.

Historical resources are unknown. However, because of the proximity to sites in RMA H, tributaries to the North Saskatchewan River, high elevation grasslands, bedrock exposures of material suitable for tool manufacture, small alpine lakes, exposed grasslands, vertical rock faces and overhangs or caves are considered to have high potential for prehistoric sites.

Timber resources are generally non-commercial on a sustained yield basis because of the low productivity of the land base. These resources are not available for sustained yield timber harvesting.

The potential for domestic grazing is minimal and available forage resources are required for the maintenance of wildlife species. Overgrazing and terrain damage have occurred in the vicinity of popular back-country destinations. Restrictions are required to limit grazing in the Entry Creek watershed (Landslide Lake / Lake of Falls area) and in the Pinto Lake area.

There are no known deposits of viable mineral resources, no mineral production and no mineral dispositions.

Resource Management Intent

The general resource management intent for the Cline River RMA is:

> To provide the opportunity for dispersed back-country experiences while protecting the environmentally sensitive watershed, wildlife, fisheries and wildland resources, in particular the high mountain lakes.

Revised Eastern Slopes Zoning

The zoning for this RMA, as depicted by Figure 23, is entirely Prime Protection (Zone 1). The refinements to the 1977 zoning were based on resource values and ecological land classification criteria. To compare the revised zoning to the 1977 zoning, see Figure 11.

Resource Management Objectives and Guidelines

The objectives and guidelines which apply specifically to the Cline River RMA are summarized in Table 7.9.

R.21 R.20 R.19 R.18

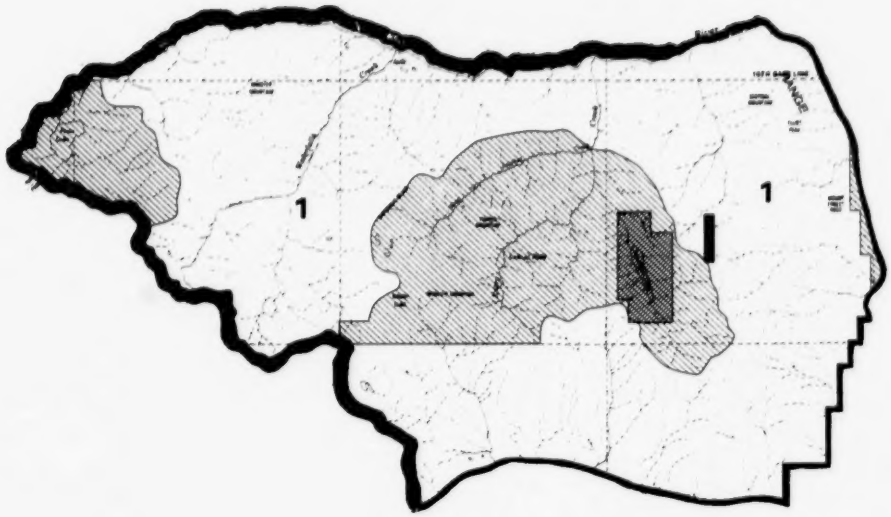
LAND USE ZONES

1. Prime Protection
2. Critical Wildlife
3. Special Use
4. General Recreation
5. Multiple Use
6. Agriculture
7. Industrial
8. Facility

Tp. 37

Tp. 36

Tp. 35



NORDEGG-RED DEER RIVER
SUB-REGIONAL PLAN
CHUNGO-CLINE-NORDEGG MAP SHEET

CLINE RIVER
RESOURCE MANAGEMENT AREA

SCALE 1 : 250 000
West of the Fifth Meridian

Access Control Area

Ecologically Significant Area

Subscripts on zone labels (eg. "2L") indicate that the number of activities which are not permitted, within the particular RMA and zone, has been expanded beyond those indicated in the Table of Permitted Activities (Table 3). See Section 4 in the text.

Figure 23. RESOURCE MANAGEMENT AREA I: CLINE RIVER

Table 7.9

RMA I (CLINE RIVER): OBJECTIVES AND GUIDELINES

Resource Management Objectives	Resource Management Guidelines
Watershed	
To maintain the high water yield and water quality of this important watershed area.	Forest land use zone or equivalent regulations have been proposed in this RMA to manage grazing in order to alleviate terrain damage and to restrict access to non-motorized users only.
To protect sensitive areas by minimizing terrain damage.	
Wildlife	
To increase populations to 100 moose, 50 elk, 75 mule deer, 75 Rocky Mountain goat and 75 caribou.	Portions of this area may respond well to prescribed burning as a means of improving habitat for wild ungulates.
To maintain populations of whitetailed deer (30), sheep (50), black bear (10), grizzly bear (5), cougar (5), coyote (10) and wolverine (5).	Motorized travel will be restricted to prevent undue harassment of wildlife.
	Development of new trails should be planned to prevent undue harassment of wildlife as a result of a trail location.
To achieve a stable population of five wolves.	Caribou will continue to be protected so that they may reoccupy former ranges to the north and east.
	Horse use should be regulated to ensure that grazing does not limit wildlife populations.
	Wolves will be kept at low densities through commercial trapping, treaty Indian hunting and recreational hunting to encourage ungulate population increases.
Fisheries	
To protect habitat areas which are important for specific fish populations: a) Critical spawning areas for bull trout in the headwaters of Cline River; b) Rearing and overwintering areas for bull trout and Rocky Mountain Whitefish along the Cline River; and c) Spawning areas for cutthroat trout in the headwaters of Entry Creek.	Further fisheries survey work (involving fish population estimates, water quality and habitat, and specifically identifying key spawning, rearing and overwintering areas) will be undertaken to formulate future fisheries management programs for this RMA. Co-operative management of helicopter access to high mountain lakes is required to minimize conflict with other users of these unique fisheries.
Fisheries	
To maintain and where possible enhance naturally reproducing game fish populations, providing optimum recreational use: a) Pinto Lake; b) Lake of Falls; and c) Others as identified.	Careful regulation of angling on high mountain lakes will be required to ensure survival of naturally reproducing sport fish populations. Detailed management plans will be developed for key streams and lakes.
To maintain or enhance lakes with fisheries potential: a) Michelle Lakes; b) Landslide Lake; c) Unnamed Lake (18-36-18-W5); and d) Others as identified.	
To maintain the wilderness character to ensure continued availability of some unique back- country fishing experiences in this portion of the Eastern Slopes.	
Recreation	
To provide and more intensively manage backcountry, non-motorized recreation opportunities with the major emphasis on equestrian and hiking trails.	Maintenance and upgrading of the historic and existing non-motorized trails will continue. An additional minimum of 10 km (6 mi.) of trails will be upgraded.
To ensure the maintenance of the exceptional scenic recreational resources and wildland character.	Primitive back-country camping facilities will be developed in conjunction with the trail maintenance and upgrading program. Recreation trail programming within this unit will be managed in co-operation with Banff National Park.
Tourism	
To provide opportunities for helicopter use in this RMA to transport fishermen and day users to specific sites.	
To maintain opportunities for commercial equestrian uses, including trail riding, outfitting and guiding.	

Table 7.9

RMA I (CLINE RIVER): OBJECTIVES AND GUIDELINES (Continued)

Resource Management Objectives	Resource Management Guidelines
Ecological Resources	
To retain the Wapateehk Canyon (Landslide Lake) Natural Area.	The reservation for this site will be maintained.
Timber	
To manage the forest resources with emphasis on protection from fire, insects and disease through established programs including sanitation logging.	Should sanitation logging become necessary, operating plans will reflect the high watershed, recreation and wildlife values, and all surface disturbances will be reclaimed promptly.
Range	
To monitor and manage equestrian use of forage resources in this back-country unit.	RMA I has the second highest priority for back-country range surveys to determine present and future allowable levels of equestrian use so as to ensure that good range condition is maintained. Forest land use zone or equivalent regulations have been proposed in the Entry Creek and Pinto Lake watersheds to alleviate terrain damage and forage overuse by equestrian users (e.g., set-backs from lakes, packing in feed).
Minerals	
	No mineral resource activity is permitted.
Access	
To maintain appropriate levels of non-motorized access to the exceptional resources of this RMA.	Access restrictions will be applied to this area under The Forests Act and through other mechanisms (e.g., hunting regulations under the Wildlife Act). Restrictions on motorized uses along the Pinto Lake trail will be applied through Forest Recreation Trial or equivalent regulations.

Summary and Implications

The Cline River RMA exhibits resource values capable of providing significant economic and social benefits. These include: water production; hunting and trapping; wilderness fishing; helicopter day use and fishing; equestrian activities, including outfitting, guiding and trail riding; wilderness hiking and day use; back-country camping; and enjoyment of scenic, geological and ecological features, including the Cline River canyon and Landslide Lake.

Management required for the Cline River RMA includes: restrictions on motorized access through hunting regulations, and forest land use zone, forest recreation trail or equivalent regulations; equestrian and hiking trail maintenance; development of back-country campsites; maintenance of a land base for future park or recreation area development; co-operative management of helicopter use; protective management of the forest resources; and monitoring and regulation of equestrian uses of trails, destination areas and forage (through forest land use zone or equivalent regulation).

Regulations for access control areas (i.e. forest land use zones or equivalent) and forest recreation trails would effectively aid the attainment of the resource objectives within this RMA.

4.10 Resource Management Area J: Bighorn River

Description

Most of this RMA is in the alpine ecoregion, with a significant portion of subalpine features (mainly along the valleys) and a very minor component of boreal uplands (along the Bighorn and Brazeau rivers). The western boundary of this RMA is contiguous with White Goat Wilderness and Jasper National Park.

The main watersheds within the RMA are the Bighorn River, Job, Coral and Littlehorn creeks, and the upper headwaters to the Blackstone River and Wapiabi Creek. This RMA provides relatively high quantities of clean water. The watershed sensitivity of the unit has been rated as low because of the stable and coarse nature of surficial deposits. Soils are generally shallow, however, and are slow to recover from disturbance. Terrain damage and erosion resulting from equestrian use has been identified as a concern in heavily used areas such as Job Pass and Job Lake. Off-highway vehicle use and helicopter use have also been identified as major concerns in this unit.

This remote area is noted for its good populations of bighorn sheep. Elk and moose are common but at present the populations are below carrying capacity. Their recovery is dependent upon predator reduction, habitat improvement (forage enhancement), and reduced hunting and harassment pressure (adjustment of seasons). Grizzly bears range throughout the area and portions of the RMA are being used as problem bear release sites. Rocky Mountain goat populations are on the increase and re-establishment of viable caribou populations will be encouraged. Grazing competition between trail ride horses and wildlife is acute in the Job Lake area and will require correction if wild ungulate numbers are to be increased in the area. The recent increase in off-highway vehicle use in this RMA may seriously impact wildlife populations through increased harassment. Conflict between equestrian hunting groups and off highway vehicle users is growing.

The fisheries of this RMA are largely restricted to stocked cutthroat populations. Most significant is the heavily used cutthroat fishery at Job Lake. Spawning of the Job Lake population occurs in Job Creek below the lake and cutthroats have become distributed down the system. A number of problems exist at this site; these include overfishing, conflicts between helicopter fishing parties and other users,

and overgrazing by equestrian fishing parties. Obstruction Lake also contains a stocked cutthroat trout population. Cutthroat trout have recently been introduced to the Bighorn River system; however, it may be several years before it can be determined if these plantings were successful. Native bull trout are present in the Brazeau River and some of its tributaries in the northern portion of this RMA.

RMA J has a high potential for dispersed back-country recreation. The headwaters of Job Creek, Coral Creek, Littlehorn Creek, Blackstone River, Wapiabi Creek and the Bighorn River contain exceptional alpine scenery and currently receive a high level of primarily equestrian use. Fisheries (i.e. Job Lake and Obstruction Lake) draw most of this use through the Coral Creek and Job Creek drainages.

The Big Horn River drainage is used largely by hunters in the fall. Stocking of the Bighorn River with cutthroat trout could result in increased pressure from both hiking and equestrian users. The large increase in back-country use in this RMA in the recent past (largely due to development of high mountain fisheries) has resulted in a need for more active trail maintenance and upgrading.

This RMA has not been the subject of any archaeological investigation. However, considering the density of sites along the North Saskatchewan River and in Jasper Park to the west, the area is believed to have considerable potential for the occurrence of prehistoric sites, especially along the Brazeau River, alpine areas, passes, shores of lakes, tributary streams and exposures of rock suitable for tool manufacture.

The timber resources in this RMA are generally non-commercial because of the low productivity of the land base and are not available for sustained yield timber production.

The potential for domestic grazing is low and available forage resources are required for the maintenance of wildlife species. Overgrazing and terrain damage have occurred in the vicinity of popular back-country destinations. Restrictions are required to reduce forage over-use around Job Lake and to restrict access to non-motorized users.

There are no known viable mineral deposits and no mineral production within this RMA.

Resource Management Intent

The general resource management intent for the Bighorn River RMA is:

> To protect the environmentally sensitive watershed, wildlife, fisheries and wildland resources while providing the opportunity for high-quality, extensive backcountry recreational experiences.

Revised Eastern Slopes Zoning

The revised zoning for the Bighorn River RMA, as shown on Figure 24 is entirely Prime Protection (Zone 1). The refinements to the 1977 zoning, which is shown on Figure 11, were based on ecological land classification criteria and closely related resource values.

Resource Management Objectives and Guidelines

Table 7.10 contains the objectives and guidelines specific to RMA J.

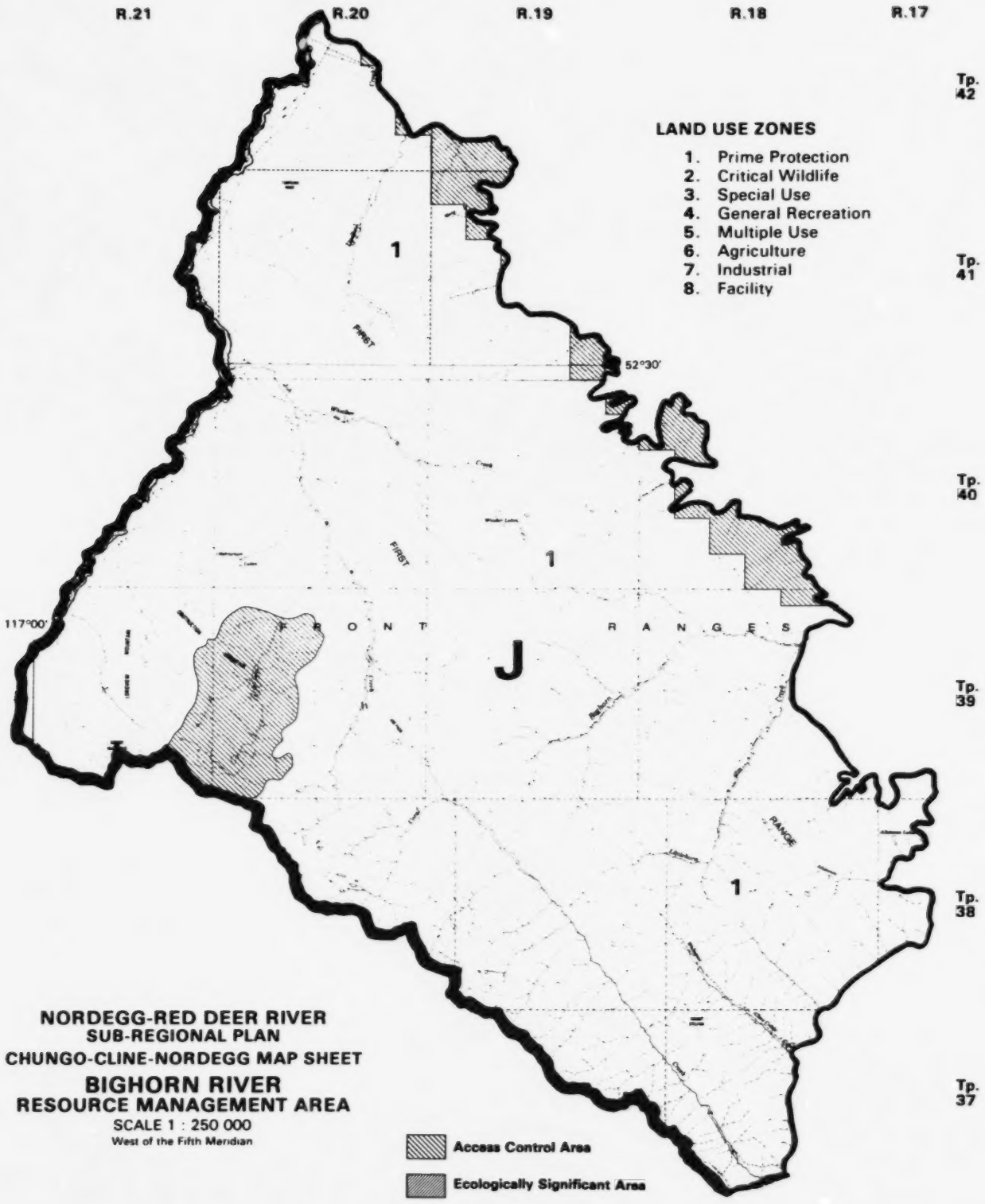


Figure 24. RESOURCE MANAGEMENT AREA J: BIGHORN RIVER

Table 7.10

RMA J (BIGHORN RIVER): OBJECTIVES AND GUIDELINES

Watershed

Resource Management Objectives	Resource Management Guidelines
To maintain the current high water quality and yield.	Future management and/or regulation may be required to prevent motorized access into the Bighorn River and Coral Creek watersheds.
To protect sensitive areas by minimizing terrain damage and erosion.	Terrain damage in alpine and subalpine areas requires reclamation; trails will be rerouted or upgraded to prevent further damage.

Wildlife

To increase populations to 300 moose, 150 elk, 250 mule deer, 140 Rocky Mountain goat and 27 grizzly bear.	Recreational horse grazing will be regulated to minimize competition with wild ungulates.
To maintain populations of white-tailed deer (20), sheep (450), black bear (35), cougar (15), wolf (14), coyote (40) and wolverine (17).	Motorized travel will be managed to minimize harassment of wildlife through appropriate regulation (including forest land use zone or equivalent regulations and hunting regulations).
To re-establish caribou (175).	Problem grizzly bears may be relocated into this area.
To maintain the wilderness hunting experience and wildlife viewing opportunities in this RMA.	Caribou will be relocated into this unit when stock becomes available, subject to a positive feasibility study.
	Wildlife habitat enhancement in some portions of the RMA may be undertaken; prescribed burns may be one of the techniques used.
	Wolves will be kept at low densities through trapping and hunting to encourage ungulate population increases.

Fisheries

Resource Management Objectives	Resource Management Guidelines
To protect habitat areas which are important for specific fish populations: a) Spawning areas for cutthroat trout in the outlet of Job Lake; b) Spawning and rearing areas for bull trout in tributaries to the Brazeau River; and c) Spawning, rearing and overwintering areas for cutthroat trout in the Bighorn River drainage.	Further fisheries survey work involving fish population estimates, water quality and habitat, specifically identifying key spawning, rearing and overwintering areas, will be undertaken to formulate future fisheries management programs for this area.
To increase recreational fisheries opportunities by developing new fisheries (e.g., Bighorn River).	Off-highway vehicle use in this unit will be regulated to minimize activities which detract from the wilderness fishing experience through forest land use zone or equivalent regulations, in this and in the adjacent RMA.
To maintain and where possible enhance naturally reproducing game fish populations, providing optimum recreational use: a) Job Lake b) Others as identified.	Co-operative management of helicopter access to high mountain lakes (e.g., Job Lake) is required, to minimize conflict with other users of these unique fisheries.
To maintain or enhance lakes with fisheries potential: a) Coral Lake b) Obstruction Lake c) Allstones Lake d) Others as identified	Careful regulation of angling on high mountain lakes in this RMA will be required to ensure survival of naturally reproducing sport fish populations.
To maintain the wilderness character of this area to ensure the continued availability of some unique back-country fishing experiences in this portion of the East Slopes.	Detailed management plans will have to be developed for critical streams and lakes in this RMA. Fisheries survey work will be done to determine whether the cutthroat trout plant has been successful on the Bighorn River. If the plant was successful, further survey work will be conducted to locate critical habitats (spawning, rearing and overwintering areas).
	Special angling regulations may have to be implemented to provide long term survival of naturally reproducing cutthroat trout (e.g., alternate open and closed years).

Recreation

To provide and more intensively manage back-country, non-motorized recreation opportunities with the major emphasis on equestrian and hiking trails.	Maintenance and upgrading of the historic and existing non-motorized trails will continue. An additional minimum of 30 km (18 mi.) of trails will be upgraded within this unit.

Table 7.10

RMA J (BIGHORN RIVER): OBJECTIVES AND GUIDELINES (Continued)

Recreation

Resource Management Objectives	Resource Management Guidelines
To ensure the maintenance of the exceptional scenic resources and wildland character of this RMA.	Primitive back-country camping facilities will be developed in conjunction with the trail maintenance and upgrading program. Recreation trail development within this unit will be managed in cooperation with Jasper National Park.

Tourism

To provide opportunities for helicopter use in the area to transport fishermen and day users to specific sites. To maintain opportunities for commercial equestrian uses, including trail riding, outfitting and guiding.	

Timber

To manage the forest resources with emphasis on protection from fire, insects and disease through established programs, including sanitation logging.	Should sanitation logging become necessary, operating plans will reflect the high watershed, recreation and wildlife values of this RMA and all surface disturbances will be reclaimed promptly.

Range

To maintain and where necessary improve range condition within this back-country RMA.	Forest land use zone or equivalent regulations have been proposed for the Job Lake area to control equestrian use of forage (e.g., set-backs from lakes, packing in feed). RMA J has the highest priority for back-country range surveys to determine present and future allowable levels of equestrian use so as to ensure that good range condition is maintained.

Minerals

Resource Management Objectives	Resource Management Guidelines
	Mineral resource activity is not permitted within this RMA.

Access

To maintain appropriate levels of non-motorized access to the sensitive resources of this RMA.	Forest land use zone and forest recreation trail or equivalent regulations will be applied to restrict motorized access within this RMA.

Summary and Implications

The resource values of the Bighorn River RMA are capable of providing the following significant economic and social benefits: water production; hunting and trapping; wilderness fishing; helicopter use; equestrian activities including trail riding, guiding and outfitting; wilderness hiking and day use; back-country camping; and enjoyment of scenic wilderness.

Management required for this RMA includes: restrictions on motorized access through forest land use zone or equivalent regulations, forest recreation trail and hunting regulations; habitat enhancement; stocking of caribou and relocation of problem grizzly bears; additional stocking of cutthroat trout; equestrian and hiking trail maintenance; development of back-country campsites; co-operative management of helicopter use; protective management of the forest resources; and monitoring and managing (through forest land use zone or equivalent regulations) equestrian uses of trails, destination areas and forage.

4.11 Resource Management Area K: Nordegg

Description

RMA K consists of boreal uplands ecoregion components with lesser areas of subalpine (Mount McGuire, Black Mountain, Brazeau Range) and montane features (near Abraham Lake).

The major drainages in this RMA include the lower Bighorn River, the North Saskatchewan River and Shunda, Gonika, Haven, Crooked, Sunkay, Jock, Gap, South and lower Tershishner creeks. The unit has a moderate value for water production. Snowpacks in the lower North Saskatchewan River valley are frequently affected by chinook winds. Bank slumping and channel cutting are a concern in the mid reaches of Gonika and South Creeks while poor soil drainage is a concern in the Shunda, Haven, Sunkay and Crooked creek drainages.

Potential watershed concerns which have been identified include further development of Nordegg townsite and of the David Thompson Highway corridor.

The most important wildlife species in this unit are moose, elk and mule deer. All of these species are below carrying capacity. Grassy slopes along the North Saskatchewan River are key areas for ungulates to overwinter. A small elk population winters in the Nordegg area. Bighorn Sheep are present on the Brazeau Range. These elk and sheep populations will be maintained primarily for non-consumptive uses. Escaped and/or abandoned horses are competing with elk and deer for range in this unit. Rocky Mountain goats have been relocated into the RMA and their increase will be encouraged. Wolves are present in moderate numbers and bears (particularly black bears) are abundant and occasionally cause conflicts with recreationists and residents.

This RMA contains substantial fisheries resources. The North Saskatchewan River supports bull trout, Rocky Mountain whitefish, cutthroat and some brown trout. Fluctuating discharges from the Big Horn Dam have potential to cause serious impacts to these mainstream populations. Crooked Creek supports a substantial brook trout population, while Haven Creek supports bull trout and Rocky Mountain whitefish. The upper Bighorn River and Sunkay Creek have been recently stocked with cutthroat trout. Shunda Creek supports high populations of brown and brook trout. Expansion in the Nordegg area could result in

deterioration of this important fishery if large increases occur in the amounts of sewage effluent entering Shunda Creek. Shunda and Goldeye lakes provide excellent stocked rainbow trout fisheries in both summer and winter. In general, use of the fishery resources of the RMA is very high.

The Nordegg RMA receives a high level of outdoor summer recreation use. Facility development is intensive in the area with a number of developed forest recreation areas. This unit has the potential for the development of traversing activities, particularly winter activities such as cross-country skiing and snowmobiling. The lower Bighorn River with its spectacular rock canyon and Crescent Falls, has potential for the development of hiking and/or day-use activities. Water-based activities are popular on the North Saskatchewan River and on Goldeye and Fish lakes. A staging area has been developed where the Forestry Trunk Road crosses the North Saskatchewan River, to serve equestrian and hiking users of the Aylmer trail and water-based recreationists on the North Saskatchewan River.

Within this unit, the David Thompson Highway and the Forestry Trunk Road intersect at the town of Nordegg. Tourist facilities and services are found at Nordegg and at a facility on the Big Horn Indian Reserve near the Crescent Falls turnoff. Crescent Falls is a popular attraction for the touring public. A youth hostel, north of Nordegg, was recently completed. The David Thompson Highway corridor has the highest potential for facility and related development in the overall planning area.

This RMA has seen limited archaeological investigation in the vicinity of the North Saskatchewan River and on Shunda Creek near Nordegg. Again the terraces and benches above the North Saskatchewan are considered to be of very high potential. Additionally, smaller tributaries, lake shores, exposed grasslands, high benches and bedrock exposures are also of historic resource potential.

The Nordegg townsite and mine site are the major recorded historical sites in the planning area. The old Nordegg townsite is not accessible at present to the general public as it is being used as a minimum security correctional institute.

The Nordegg area has a long history of timber harvesting dating back to approximately 1910 when the coal mine began operation; however, the area harvested to date has been minimal. The level of harvesting

can be expected to increase as a portion of the RMA falls within the Nordegg block of the Brazeau TDA and as there are also areas within this RMA under quota commitment.

At present there are no grazing dispositions within this unit. Most of the area has poor potential for unimproved or improved grazing because of coniferous forest cover, terrain constraints and poor soil drainage. Several small areas, mainly along lower Crooked and Kidd creeks, have identified unimproved and improved grazing potential.

Escaped and/or abandoned horses grazing adjacent to the David Thompson Highway have been identified as a traffic hazard.

This RMA contains established coal resources of about 230 million tonnes and reserves of coal recoverable under present conditions of 80 million tonnes. These resources are found in the Nordegg coal field and the Bighorn Falls coal deposit. In these and other parts of the RMA the potential for coal is very high and renewed exploration could greatly expand the currently known reserves. Coal was produced from several underground and surface pits in the Nordegg field between 1910 and 1956. A large area is under coal lease, coal lease application or freehold coal rights. There is one approved limestone quarry. Some petroleum and natural gas rights are under disposition, however, exploration activity is not high.

Resource Management Intent

The general resource management intent for the Nordegg Resource Management Area is:

> To provide a focus for intensive multiple use activities, with a recreation emphasis along the two major road corridors and in the vicinity of Nordegg, while maintaining watershed, wildlife and fisheries values, in Shunda Creek in particular.

Revised Eastern Slopes Zoning

This RMA includes all of the Eastern Slopes zones except Prime Protection (Zone 1) and Agriculture (Zone 6). The Critical Wildlife, General Recreation and Multiple Use zoning complex has been adjusted using ecological land classification and other resource information. The Special Use Zone remains unchanged for the Big Horn Indian Reserve. The Industrial and Facility Zones have been reduced to those areas currently under disposition and use (Figure 25).

Resource Management Objectives and Guidelines

The objectives and guidelines specific to RMA K (Nordegg) are given in Table 7.11.

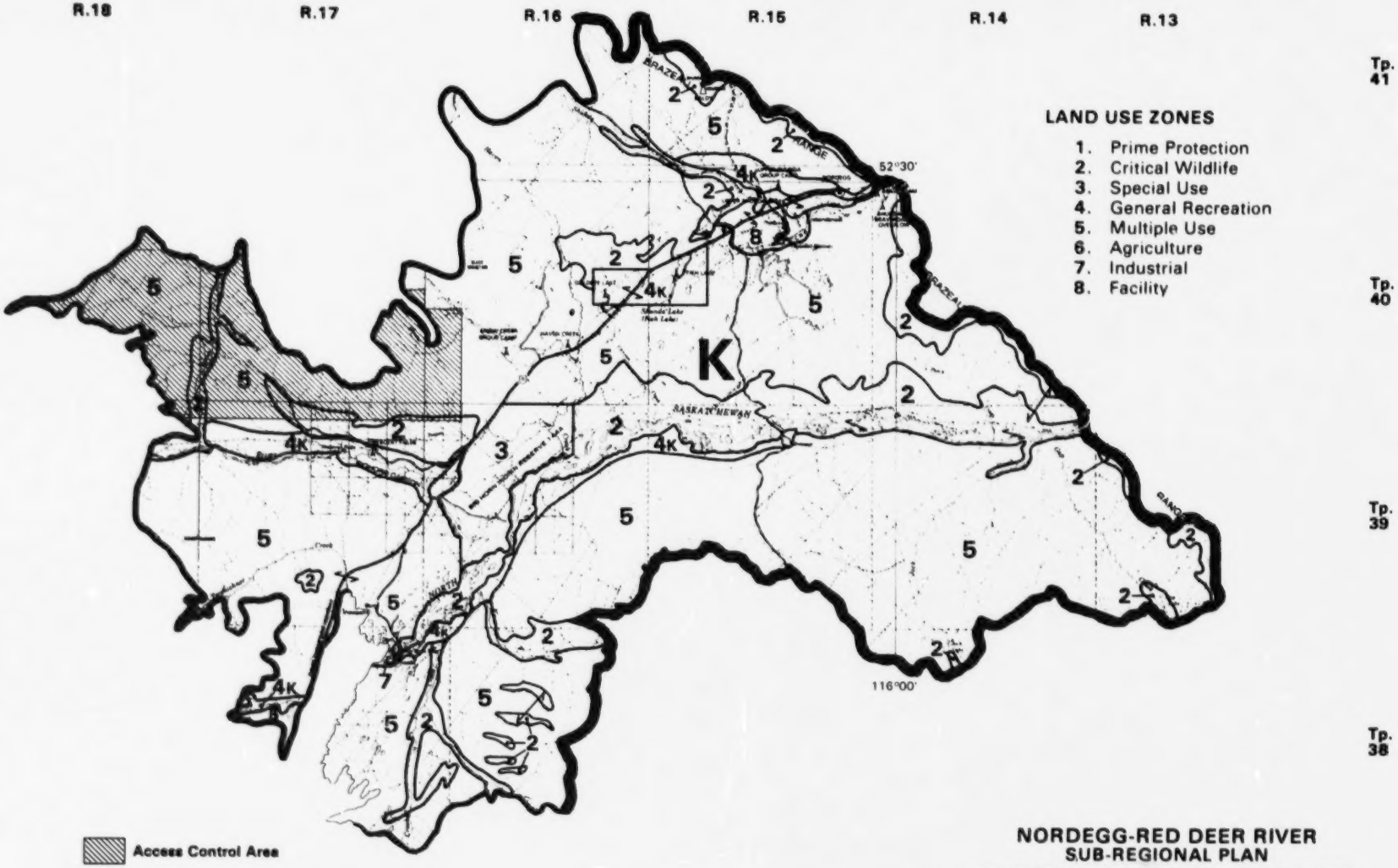


Figure 25. RESOURCE MANAGEMENT AREA K: NORDEGG

Table 7.11

RMA K (NORDEGG): OBJECTIVES AND GUIDELINES

Watershed

Resource Management Objectives	Resource Management Guidelines
To maintain current water quality and yield in this RMA, particularly in Shunda Creek which is a valuable recreational fishery.	Existing sewage disposal operations at Nordegg will be required to meet normal standards and regulations.
To continue use of the Big Horn Dam for hydroelectric power generation.	Land use activities will be confined to winter in the considerable areas of impeded drainage; stream crossings will be directed away from areas identified as having a high erosion potential.
	Better information on the effects of land management on water quality, quantity, and timing will be required in this RMA.

Wildlife

To increase populations to 300 moose, 400 elk, 300 mule deer and 15 Rocky Mountain goat.	Logging will be used to improve wildlife habitat through maintenance of a mosaic of cover types.
To maintain populations of white-tailed deer (100), sheep (130), cougar (15), coyote (45), grizzly bear (5) and wolverine (15).	Wolves will be kept at low densities through commercial trapping, recreational hunting and treaty Indian hunting to encourage ungulate populations to increase.
To achieve stable populations of two wolves and 30 black bear.	Garbage disposal will be regulated to minimize bear conflicts.
To minimize bear-human conflicts without decimating the bear populations.	Bears will be removed as required to reduce conflicts at high use recreation sites.
	Elk will be relocated here as stocks and priorities allow.
	Elk and sheep populations in the vicinity of Nordegg will be maintained primarily for non-consumptive uses.

Fisheries

To protect habitat areas which are important for specific fish populations:	Additional fisheries will be developed to increase angling opportunities and distribute fishing pressure (e.g., stocking of Sunkay Creek and Bighorn River above Crescent Falls).
a) Spawning areas for brook trout, brown trout and Rocky Mountain whitefish on Shunda Creek; and b) Spawning areas for brook trout in Crooked Creek.	The effect of altered discharges from Big Horn Dam on the North Saskatchewan River should be evaluated to determine its effect on fish populations found downstream of the dam.
To protect habitat areas important to specific fish populations: a) Rocky Mountain whitefish and bull trout in lower Bighorn River; b) Bull and brook trout in Haven Creek; c) Rocky Mountain whitefish, bull trout, brook trout, cutthroat trout, brown trout and rainbow trout in the North Saskatchewan River; and d) Cutthroat trout into upper Bighorn River and Sunkay Creek.	Special consideration will be given to the potential impacts on Shunda Creek of significant population increases and industrial activities in the vicinity of Nordegg. Sewage and water management plans will recognize the sensitivity and importance of this stream.
To protect migratory corridors for specific fish species, in particular the North Saskatchewan River.	
To maintain fish populations along the North Saskatchewan River below the Big Horn Dam by minimizing the negative effects of river fluctuations.	
To maintain or enhance lakes with fish stocking potential. a) Goldeye Lake; b) Gap Lake; c) Fish Lake; and d) Others as identified.	

Recreation

To provide and maintain a variety of outdoor recreation opportunities, focusing on the David Thompson Highway and Forestry Trunk Road corridors and the area near Nordegg.	Maintenance and upgrading of existing auto access and group camping facilities will occur as required.
To accommodate a variety of water-based recreation activities occurring on and adjacent to the North Saskatchewan River.	Opportunities exist for formal development of snowmobile and cross-country ski trails within this unit. However, trail development will not occur until consideration is given to areas with a higher potential and priority in other RMAs and other planning areas.

Table 7.11

RMA K (NORDEGG): OBJECTIVES AND GUIDELINES (Continued)

Resource Management Objectives	Resource Management Guidelines
Recreation	
To provide and maintain dispersed recreation trail programs staging from recreation areas, David Thompson Highway and the Forestry Trunk Road (i.e., snowmobiling, cross-country skiing, hiking, etc.).	A staging area will be formalized for the Allstones Lake Trail with consideration given to developing another in the lower Bighorn River valley. Maintenance and upgrading of existing and historical non-motorized trails will continue. An additional minimum 10 km (6 mi.) of trails wil be upgraded.
To monitor recreational use generated by any future development in the Nordegg area as a result of the Cline River Resort project and timber development.	Expansion of existing auto-access facilities or development of additional auto access facilities is not justified by demand at present. Recreation use and demand will be monitored to identify the need for future facility development. The Haven Creek Forest Recreation Area is a priority for expansion of existing auto access facilities.
To maintain the aesthetic and recreational values of this RMA by ensuring that these values are not impaired by forest harvesting or other developments.	
Tourism	
To provide opportunities for the private sector to meet the needs of recreational users and travelling tourists.	Any future development of the Nordegg townsite should include visitor services information.
To enhance the tourism experiences in the area by providing opportunities for viewing scenic areas, including the Bighorn River canyon and Crescent Falls.	Existing commercial facilities and services should be maintained and upgraded, as demand dictates, to serve the RMA's users and the travelling public. When appropriate, new commercial facilities and services should be developed.
To recognize the David Thompson Highway as the primary focus for touring opportunities.	Further services development and facilities will be concentrated at Nordegg.
To consider private sector recreation proposals.	
Historical Resources	
To protect the historical and cultural resources located within this RMA.	Alberta Culture will compile and assess the historical and cultural resources found within the Nordegg townsite and minesite area.
Historical Resources	
	The Archaeological Survey of Alberta, Resource Management Section will participate in the land use referral process to review proposed developments in the following areas of the RMAs deemed to have historical resource potential: a) Lands adjacent to the Bighorn and North Saskatchewan rivers and their tributaries; Shunda Creek and its tributaries; and Shunda and Fish lakes; b) Historic structures in the Nordegg townsite and mine locale. c) For the following areas, Alberta Culture will participate in referrals on projects involving development of a quarter section or more land: Goldeye Lake and associated unnamed lakes; and unnamed lakes on tributaries to the North Saskatchewan River.
Timber	
To provide a sustained yield of wood fibre to meet the requirements for quota holders and other awards granted within the Brazeau Timber Development Area.	Cut block layout and design will reflect the high recreation value of this RMA, particularly along the David Thompson Highway and Forestry Trunk Road corridors and near established recreation facilities.
Range	
To provide grazing opportunities for wildlife and domestic stock based on land capability and demand. To monitor and manage escaped and/or abandoned horses.	The impact of escaped and/or abandoned horses along roads and on rangelands will be minimized through appropriate management practices.
Minerals	
To provide opportunities for industry to assess and develop the Nordegg and Bighorn Falls deposits and to explore the other coal deposits.	Any townsite development in the vicinity of Nordegg should minimize the sterilization of coal or other minerals.

Table 7.11

RMA K (NORDEGG): OBJECTIVES AND GUIDELINES (Continued)

Minerals

Resource Management Objectives	Resource Management Guidelines
To provide opportunities for industry to explore and develop petroleum and natural gas.	Petroleum and natural gas activities are prohibited in the vicinity of the Big Horn Dam, powerhouse and the downstream channel and spillway.
To provide opportunities for industry to explore and develop limestone or other minerals.	*(Zone 4K) No sand and gravel extraction or quarriable minerals exploration and development is permitted in the General Recreation Zone.

Settlement

To provide for orderly community development in the vicinity of the existing Nordegg townsite.	The above guidelines for watershed, wildlife, fisheries, recreation, tourism, historical resources and minerals will be considered in any townsite development.
To provide opportunities for public and private recreation facility development in the vicinity of Nordegg.	Criteria will be developed by all involved agencies to determine site and infrastructure requirements.
	A site for a cottage subdivision will be proposed for the Nordegg area.
	* (Zone 4K) Residential development is not permitted in the General Recreation Zone.

Access

To maintain appropriate access within the Nordegg RMA.	Access management (e.g., designated vehicle routes) is required to meet a variety of resource management objectives.
	Common corridors and existing access will be used where possible.

Summary and Implications

The Nordegg RMA contains resource values capable of providing significant economic social benefits. These benefits include: hydro-electric power production; water production; hunting, wildlife viewing, trapping and fishing; auto-access and group camping; snowmobiling and cross-country skiing; private and commercial waterbased activities; staging for equestrian activities and hiking into adjacent RMAs; hiking and equestrian uses within the RMA; day use; commercial accommodation and related services; activities related to potential public and private facility development, including possible cottage development; enjoyment of scenic features, including the Bighorn River canyon and Crescent Falls; forage production for wildlife; potential production of coal, limestone, petroleum and natural gas; and potential townsite development and related activities.

Management required for this RMA includes: regulation of forest management, other resource activities and townsite development; co-ordinated access planning and access management; management of human-animal conflicts (including vehicle collisions with escaped and/or abandoned horses and depredation by bears in campgrounds and the townsite); additional stocking of cutthroat trout; maintenance of auto access and group campgrounds; development of cross-country skiing and snowmobiling trails; development and maintenance of day use facilities and access to the North Saskatchewan and Bighorn Rivers; staging area development; maintenance of equestrian and hiking trails; sustained yield timber management (including landscape logging techniques); control of escaped and/or abandoned horses; selection of a preferred location for townsite development; and selection of preferred locations for public and private facility developments.

The concerns requiring continued attention in this RMA are the management of access, the future location and extent of the townsite and related development, and the regulation of the escaped and/or abandoned horse populations.

4.12 Resource Management Area L: Blackstone-Wapiabi

Description

The Blackstone-Wapiabi RMA consists of a mainly subalpine valley/ridge complex, an alpine/subalpine mountainous outlier (the Bighorn Range) and minor intrusions of boreal uplands along the stream valleys. This RMA contains the major portion of the headwaters for the Blackstone River and Chungo and Wapiabi creeks.

Relatively high quantities of clean water originate in this RMA, for which there is a high downstream demand. The unit has an overall moderate watershed sensitivity although several drainages have been identified as having a high sensitivity. Surficial deposits are generally coarse and stable; however, slope steepness and shallow soil development increase the risk of watershed deterioration resulting from surface disturbances. Unrestricted off-highway vehicle access has resulted in some terrain damage. A mixture of well and poorly drained meadows occurs in the major valley bottoms.

This RMA supports very important sheep and elk populations which are heavily utilized. Elk populations are still well below carrying capacity in the RMA but animals are being relocated to the area in an attempt to speed recovery of the population. Sheep are near carrying capacity on the Bighorn Range and to the west on the headwaters of Wapiabi, George and Mons creeks. Wolf populations in the RMA are high at present and appear to be a significant factor in the depressed elk, moose and deer populations. Harassment of ungulates by motorized vehicles has been a problem in the past and is continuing because of heavy off-highway vehicle use in the area. Grizzly bears are present in the RMA and the area behind the Bighorn Range is being used as a relocation site for bears from areas to the south. The area has good potential for habitat improvement in the form of prescribed burns to enhance forage production.

Bull trout and Rocky Mountain whitefish are common throughout this RMA. Spawning, rearing and overwintering areas for these two species occur on Wapiabi Creek, Mons Creek and its tributaries, George Creek, Chungo Creek and the Blackstone River. The area currently receives fair to moderate fishing pressure. Cutthroat trout have recently been stocked into the Chungo, Blackstone and Wapiabi systems, with apparent success.

RMA L: Blackstone-Wapiabi

This RMA is capable of supporting a moderate level of a variety of extensive, non-motorized recreational activities, such as hunting, fishing, hiking and equestrian use. Equestrian use occurs mainly in the fall, in association with hunting. Public and commercial trail riding occur in this RMA. Restrictions on motorized vehicles would contribute to the quality of these back-country activities.

This RMA is unknown territory archaeologically, with the highest potential occurring along the major drainages, including the Blackstone River and Wapiabi Creek.

Much of the RMA is covered by old growth pine and spruce stands which may be susceptible to insect or disease infestations. Proper forest management is required to reduce the susceptibility of the area to insect and fire damage. The removal of timber will be designed to protect the important recreation, water and wildlife values. The allowable annual cut to be determined for the area will reflect these resource concerns. Efforts will be made to increase the productivity of the forested lands through more intensive forest management practices.

Domestic livestock grazing does not currently occur within this RMA and the potential for domestic grazing is severely limited by a lack of suitable land base. The large meadows along the Blackstone River, Wapiabi Creek and tributaries have been identified as having marginal potential with soil conditions being generally too wet to support domestic grazing. Access and distance from the agricultural community also pose limitations to use. Some grazing occurs in conjunction with equestrian use.

The Nordegg natural gas field extends along the southeastern edge of this RMA. Limited natural gas exploration has been taking place to the west of the Bighorn Mountains. One hole drilled in 1973 on George Creek was dry. The only infrastructure is the access trail to this abandoned drillsite. About one third of the unit is under petroleum and natural gas disposition or freehold.

No coal fields have been designated by the ERCB within this RMA. There is good potential, as the coal found in outcrops continues underground. The limited amount of exploration makes any estimate of the coal reserves or of coal potential completely unreliable. Some coal exploration has taken place within the northern part of the RMA where there are leased and freehold coal rights.

Access into this RMA is limited to a few trails and seismic lines. As motorized vehicle use is generally not compatible with the resource values of this RMA, restrictions on this use are required.

Resource Management Intent

The general resource management intent for the Blackstone-Wapiabi RMA is:

> To protect the environmentally sensitive watershed, wildlife, fisheries and wildland resources west of the Bighorn Range while providing the opportunity for quality back-country recreation experiences and allowing the exploration and development of petroleum and natural gas, and forest management, on a restricted basis.

Revised Eastern Slopes Zoning

This RMA has been zoned as Prime Protection (Zone 1) for the Bighorn Range and Critical Wildlife (Zone 2) for the valley/ridges complex west of the Bighorn Range. The zoning of the Bighorn Range as Prime Protection is based on resource values and ecological land classification. The remaining area satisfies Critical Wildlife zoning criteria. See Figure 26. For comparison to the 1977 zoning, refer to Figure 11.

Resource Management Objectives and Guidelines

Table 7.12 summarizes the objectives and guidelines which are specific to RMA L (Blackstone-Wapiabi).

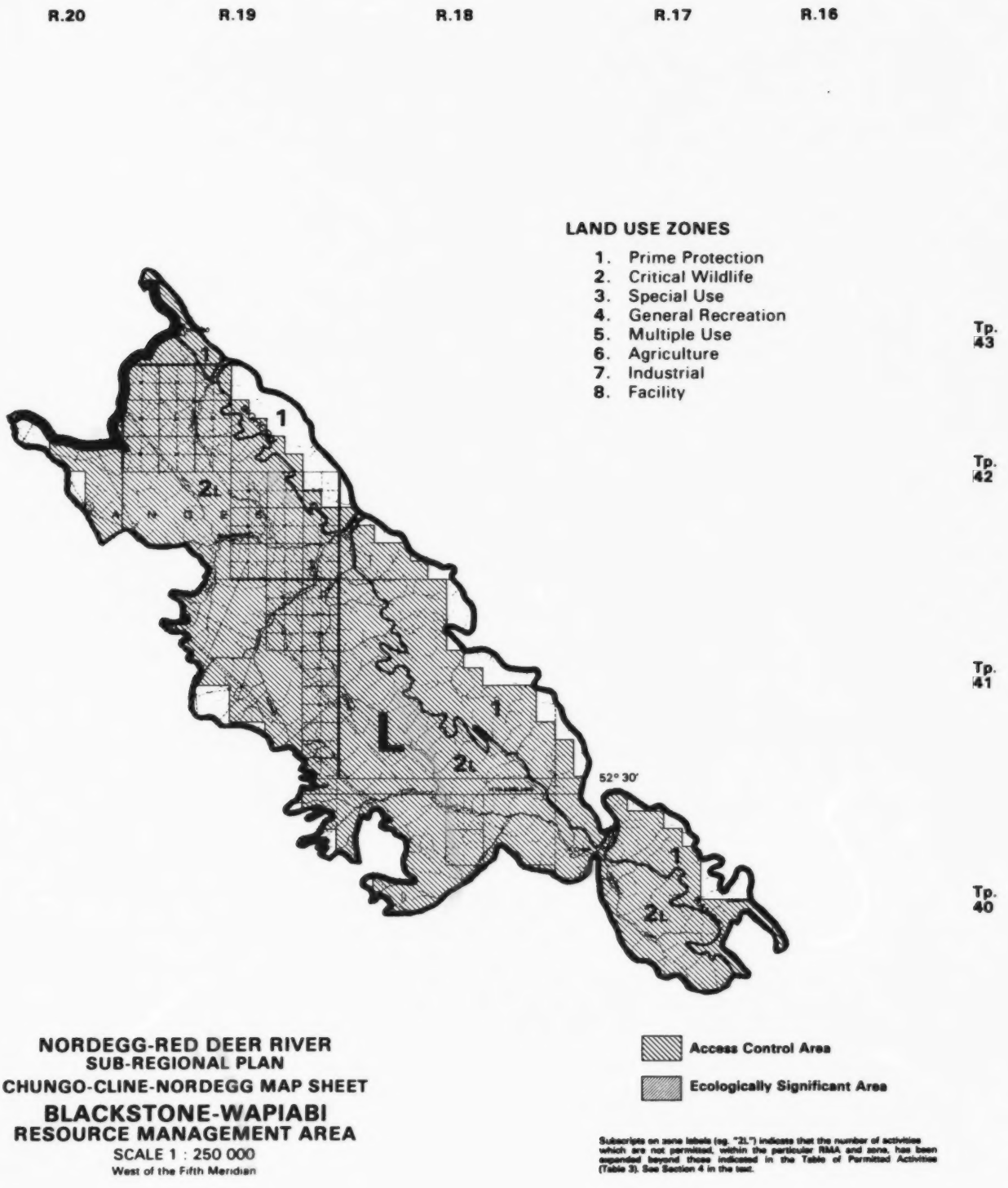


Figure 26. RESOURCE MANAGEMENT AREA L: BLACK..ONE-WAPIABI

Table 7.12

RMA L (BLACKSTONE-WAPIABI): OBJECTIVES AND GUIDELINES

Watershed

Resource Management Objectives	Resource Management Guidelines
To maintain current water quality, quantity and regime.	Stream crossings will be minimized and land use activities confined to the winter months in poorly drained and highly erodible areas wherever possible.

Wildlife

To increase populations to 100 moose, 250 elk, 75 mule deer, 40 Rocky Mountain goat and 6 grizzly bear.	Proposed restrictions on motorized travel through forest land use zone or equivalent regulations will be applied to maintain the pristine ecology and wildlife values.
To maintain stable populations of white-tailed deer (10), sheep (200), black bear (10), cougar (6), wolf (2), coyote (50) and wolverine (6).	Habitat enhancement to improve forage production for wild ungulates will be undertaken.
To maintain the natural condition of the Wapiabi Cave.	Grizzly bears will be relocated into this area as required to resolve problems in other areas of the province.
	Wolves will be regulated through commercial trapping, recreational hunting and treaty Indian hunting to encourage ungulate populations to increase.
	Access to Wapiabi Cave will be regulated to maintain bat densities. A wildlife protection area designation may be required for this site.
	Elk are being relocated into this RMA as stock becomes available.

Fisheries

To protect habitat areas which are important for specific fish populations: a) Spawning, rearing and overwintering areas for bull trout and Rocky Mountain whitefish in Wapiabi Creek, Mons Creek, George Creek, the Blackstone River and Chungo Creek; and b) Others, as identified.	This unit requires further fisheries surveys and development of appropriate management programs. Special angling regulations are required to ensure the survival of bull trout, a naturally producing resident sportfish.

Fisheries

Resource Management Objectives	Resource Management Guidelines
To maintain and/or increase recreational fishing opportunities: a) by introducing new species; and b) by developing new lakes.	Stringent operating conditions on petroleum and natural gas development and timber harvesting will be applied to prevent degradation of water quality and fisheries habitat. Restrictions on off-highway vehicle use are proposed to prevent damage to headwater fisheries habitat and overuse of these low productivity streams and lakes. Forest land use zone or equivalent regulations are proposed to address fisheries habitat concerns within this RMA.

Recreation

To provide non-motorized recreation opportunities with an emphasis on hiking and public and commercial equestrian use. To protect the scenic qualities of this back-country unit.	The forest land use zone or equivalent controls for the Blackstone-Wapiabi RMA have the effect of eliminating motorized recreational users and controlling recreational horse use in this RMA. Maintenance and upgrading of historic and existing non-motorized trails will continue. A minimum of 40 km (25 mi.) of trail will be upgraded in addition to previous trail improvements. Primitive back-country campsites will be developed in conjunction with trail maintenance and improvements. Staging areas will be developed in adjacent RMA M to facilitate hiking and equestrian use. Conditions on petroleum and natural gas activities will ensure that the high recreation values of this RMA are not impaired. * (Zone 2L) Serviced camping is not permitted in this RMA.

Table 7.12

RMA L (BLACKSTONE-WAPIABI): OBJECTIVES AND GUIDELINES (Continued)

Tourism

Resource Management Objectives	Resource Management Guidelines
To maintain opportunities for commercial equestrian uses, including trail riding, outfitting and guiding.	No base camps will be allocated within this RMA.

Historical Resources

The Archaeological Survey of Alberta, Resource Management Section will participate in the land use referral process to review proposed developments in the following areas of the RMAs deemed to have historical resource potential:
a) Lands adjacent to the Blackstone River and its tributaries; and Wapiabi and Chungo creeks and their tributaries.
b) For the following areas, Alberta Culture will participate in referrals on projects involving development on a quarter section or more land: Unnamed lakes in the RMA.

Timber

Resource Management Objectives	Resource Management Guidelines
To provide for healthy stands of timber and optimize timber growing potential.	Timber harvesting plans will emphasize enhancement of wildlife habitat and maintenance or improvement of recreation values.
To maintain and where necessary improve range condition.	Sanitation and salvage cutting will be utilized to promote a healthy forest.
To monitor and manage escaped and/or abandoned horses.	Intensive forest management techniques may be utilized to improve productivity on those forested lands within the RMA.
	A forest management plan will be jointly developed with Fish and Wildlife Division for the Blackstone Wapiabi RMA. This forest management plan will also recognize the requirement for co-ordinated recreation management.

Timber

Resource Management Objectives	Resource Management Guidelines
	A separate annual allowable cut will be established for this RMA, in conjunction with Fish and Wildlife Division.

Range

Forest land use zone or equivalent regulations have been proposed to manage equestrian use in this RMA.

No grazing dispositions will be granted within this RMA.

No grazing dispositions will be granted within this RMA.

The impact of escaped and/or abandoned horses on rangelands will be minimized through appropriate management practices.

This unit has the third highest priority for back-country range survey. These surveys are required to determine present and allowable levels of equestrian use.

Minerals

To allow industry to explore and develop petroleum and natural gas resources within this RMA.	Geophysical assessment of petroleum and natural gas resources will be conducted by heli-portable or other low impact techniques.
	Geophysical assessment will generally be limited to the period of early May to late August of any given year.
	Geophysical assessment may be permitted in Prime Protection (Zone 1) for all existing petroleum and natural gas dispositions and/or renewals of existing petroleum and natural gas dispositions.

Table 7.12

RMA L (BLACKSTONE-WAPIABI): OBJECTIVES AND GUIDELINES (Continued)

Minerals

Resource Management Objectives	Resource Management Guidelines
	*(Zone 2L) Petroleum and natural gas exploration and development will be the only mineral resource activities allowed in this RMA.

Access

To maintain appropriate access into and within this RMA, mainly for non-motorized recreational opportunities and for carefully controlled petroleum and natural gas exploration and development, and for carefully controlled timber harvesting.	Restricted access for petroleum and natural gas activities and timber harvesting will be permitted. Motorized use by the general public will be restricted or prohibited. Petroleum, natural gas and timber harvesting access will be reclaimed by the operator(s) immediately upon termination of use. If one or more industrial operators become active in this RMA, a coordinated development and access plan will be required. This plan will specify locations, timing and sequence as well as reclamation requirements of road and service development.

Summary and Implications

The Blackstone-Wapiabi RMA contains resource values capable of providing significant economic and social benefits. These benefits include: water production; hunting, wildlife viewing, trapping and fishing; back-country camping and hiking; trail riding, outfitting and guiding; production of forage for wildlife; and potential production of petroleum and natural gas.

The management requirements for this RMA include: forest land use zone or equivalent regulations; regulation of petroleum and natural gas exploration and development; exclusion of all coal activity; habitat enhancement; stocking of elk and relocation of problem grizzly bears; stocking of cutthroat trout; expansion and maintenance of trails for hiking and public and commercial trail riding; development of backcountry campsites; management of the forest resources; and monitoring and managing of the forage resources.

The key to the successful realization of this RMAs unique set of resource objectives is the control of access through the proposed forest land use zone or equivalent regulations and other management directives.

Coal resources will not be available for exploration and development.

4.13 Resource Management Area M: Brown Creek

The boreal foothills overlap with most of the Brown Creek RMA, with subalpine components occurring adjacent to the Bighorn Range. This RMA contains Brown Creek and includes portions of the Blackstone River, Chungo Creek and the Brazeau River.

Surficial deposits generally represent a moderate erosion hazard with slope steepness and relatively high drainage densities being the greatest concerns. Several current erosion problems exist, largely the result of inadequate erosion control along roads and other linear developments. The Chungo Lookout trail, which is no longer used for tower servicing, fords the upper reaches of Brown Creek more than 24 times. Off-highway vehicle use of this road has resulted in channel and bank deterioration and possibly downstream sedimentation. Restrictions are required to address these problems.

Elk and moose, the major wildlife species, are at low densities since coniferous cover is very extensive. Grizzly bear, black bear and wolves are also fairly common. The area has significant potential for increases in wildlife numbers in response to carefully planned logging operations that would open up the coniferous forest and increase habitat diversity.

This RMA supports a substantial fishery resource. Spawning, rearing and overwintering areas for bull trout and Rocky Mountain whitefish are present in Wapiabi, Chungo and Moosehound creeks. Bull trout, Rocky Mountain whitefish and brook trout occur in Sturrock Creek and Brown Creek as well as the Blackstone River. Cutthroat trout have been stocked in the Wapiabi, Blackstone and Chungo systems, and appear to be doing quite well. No lake fisheries occur within this RMA.

The rolling foothill topography of this unit is generally suited to intensive activities, such as auto access camping and day-use activities, and extensive activities, such as hiking, hunting and fishing. The eastern edge of the RMA receives the greatest level of use because of its proximity to the Forestry Trunk Road. The remainder of the area receives a moderate level of use, most of which is pursued along major valleys and is associated with hunting and fishing activities. Present auto-access camping facilities are generally below capacity throughout the year.

This area is unknown archaeologically. The drainages, such as the Blackstone River and Wapiabi Creek likely have the greatest potential.

To date, there has been a low level of harvesting of the coniferous timber resources in this unit. Most of RMA M falls within the Nordegg block of the Brazeau Timber Development Area and increased levels of harvesting can be expected in the future.

No domestic livestock grazing takes place in this RMA and the potential for grazing is limited by a lack of a suitable land base and distance from the agricultural community. Several areas along the Blackstone River and upper Brown Creek have been identified as having improved grazing potential; however, these areas are generally too small and scattered to warrant a disposition for grazing. A limited amount of grazing occurs in conjunction with equestrian use.

Natural gas is the main mineral resource. Recent discoveries have added the Bighorn, Opabin, Cordel and Voyageur gas fields to the older Nordegg field. Production of gas in 1984 was about 50 million m^3; reserves were 1.2 billion m^3. More than half the RMA is under petroleum and natural gas disposition. Coal resources have not been extensively evaluated. While the potential for coal is high, only limited exploration has been conducted and only the deposits of the Nordegg Field and at Chungo Creek have designated reserves. Established coal resources of the RMA total about 30 million tonnes at present.

The main access within this RMA is provided by the existing Forestry Trunk Road (a gravelled surface), the Chungo road (the old Forestry Trunk Road, a dry weather surface) and various other truck trails and seismic lines. Certain parts of this access network (e.g., Chungo Lookout trail, Blackstone River trail crossing at Cutoff Creek) require remedial actions.

Resource Management Intent

The general resource management intent for RMA M (Brown Creek) is:

> To provide for a range of multiple use activities regulated to protect environmentally sensitive watershed, wildlife and fisheries resource values.

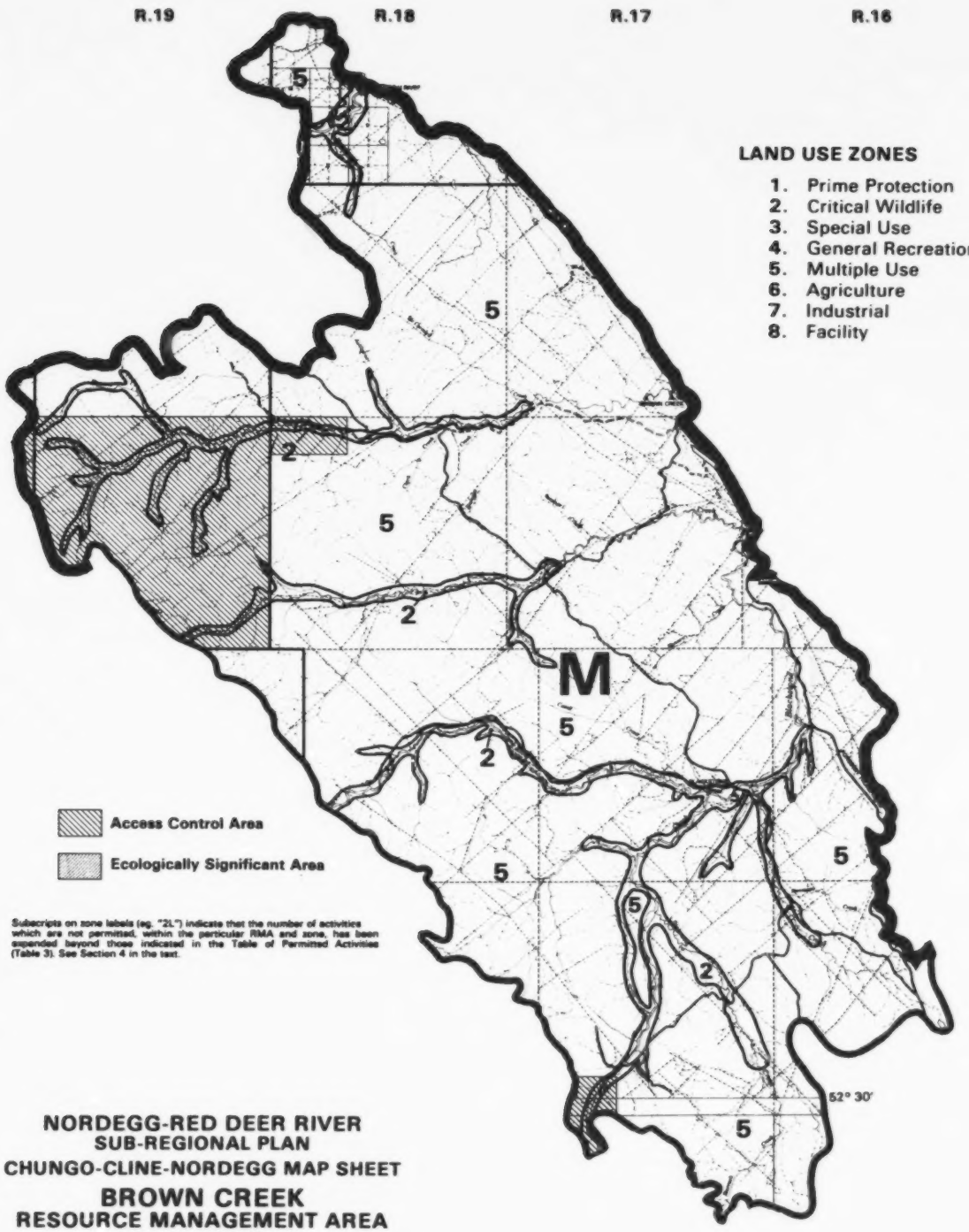
Revised Eastern Slopes Zoning

The Critical Wildlife and Multiple Use zoning for the Brown Creek RMA has been derived from the most current ecological land

classification information, wildlife, fisheries and timber resource values and other considerations. Figure 27 illustrates the revised Eastern Slopes zoning for RMA M.

Resource Management Objectives and Guidelines

The objectives and guidelines specific to the Brown Creek RMA are contained in Table 7.13.



NORDEGG-RED DEER RIVER
SUB-REGIONAL PLAN
CHUNGO-CLINE-NORDEGG MAP SHEET

BROWN CREEK
RESOURCE MANAGEMENT AREA

SCALE 1 : 250 000
West of the Fifth Meridian

Figure 27. RESOURCE MANAGEMENT AREA M: BROWN CREEK

Table 7.13

RMA M (BROWN CREEK): OBJECTIVES AND GUIDELINES

Watershed

Resource Management Objectives	Resource Management Guidelines
To maintain current water quality, quantity and regime.	A forest land use zone or equivalent access regulation has been proposed to restrict access in the upper Blackstone drainage. When this zone is established, the Chungo Lookout road will be reclaimed along upper Brown Creek to prevent further watershed deterioration. Management of off-highway vehicle use (e.g., designated vehicle routes) is required throughout the RMA to maintain good watershed condition. A greater emphasis will be placed on road location, design and erosion control to prevent re-occurrence of problems that have occurred in the past. Stream crossings will be minimized and land use activities confined to the winter months in poorly drained and highly erodible areas wherever possible. A watershed monitoring site has been established in this RMA. Better information on water quality and timing will be required in the future as the level of resource development increases.

Wildlife

To increase populations to 280 moose, 375 elk, 200 mule deer and seven grizzly bear. To maintain existing populations of white-tailed deer (100), black bear (25), cougar (12), wolf (6), coyote (60) and wolverine (12).	Logging will be used to improve wildlife habitat. Wolves will be kept at low densities through commercial trapping, treaty Indian hunting and recreational hunting to encourage ungulates. Grizzly bear populations will be allowed to increase.

Fisheries

Resource Management Objectives	Resource Management Guidelines
To protect habitat areas which are important for specific fish populations: a) Spawning, rearing and overwintering areas for bull trout and Rocky Mountain whitefish in the Blackstone River, Wapiabi Creek, Chungo Creek, Brown Creek and Moosehound Creek; and b) Spawning, rearing and overwintering areas for bull trout, Rocky Mountain whitefish and brook trout in Sturrock Creek. To increase recreational fishing opportunities by establishing self-sustaining cutthroat trout populations in the Chungo, Blackstone and Wapiabi systems. To develop some pond or lake fisheries in this RMA to diversify fishing opportunities and redirect some angling pressure from native fish populations.	Additional fisheries survey work involving population estimates, water quality analysis and habitat inventories will be undertaken to help formulate future fisheries management programs. Special angling regulations may be required to provide for the survival of naturally reproducing sportfish. Stringent operational conditions will be applied to resource developments in this area to prevent degradation of water quality and fish habitat. Fish and Wildlife Division and the Alberta Forest Service will cooperate to reclaim unnecessary trails and surface disturbances which are contributing to deterioration of water quality and fish habitat (e.g., Cutoff Creek crossing on the Blackstone Road).

Recreation

To provide and maintain auto access facilities with emphasis along current corridors (i.e., Forestry Trunk Road, Chungo Road).	Current use does not warrant expansion of the present auto-access camping facilities or construction of new facilities. Existing auto-access facilities will be maintained and upgraded as required. Two staging areas will be developed at the Wapiabi and Blackstone gaps to facilitate equestrian and hiking use in the adjacent RMA (west of the Bighorn Range). Resource extraction activities, in particular proposed timber harvesting, will recognize existing and potential areas of recreational value in this RMA.

Table 7.13

RMA M (BROWN CREEK): OBJECTIVES AND GUIDELINES (Continued)

Tourism

Resource Management Objectives	Resource Management Guidelines
To recognize the Forestry Trunk Road as the focus for touring opportunities in this RMA.	Viewpoints will be provided where demand warrants.

Historical Resources

	The Archaeological Survey of Alberta, Resource Management Section will participate in the land use referral process to review proposed developments in the following areas of the RMAs deemed to have historical resource potential: a) Lands adjacent to the Brazeau and Blackstone rivers and their tributaries; and Chungo, Wapiabi and Brown creeks and their tributaries. b) For the following areas, Alberta Culture will participate in referrals on projects involving developments of a quarter section or more land: Unnamed lakes in the RMA.

Timber

To increase utilization of wood fibre under sustained yield policies.	Annual operating plans will reflect the recreation values of this RMA, particularly adjacent to the Forestry Trunk Road.
To maintain a forest environment of high quality.	

Range

To maintain range within this RMA in good condition.	The forage within this RMA will be managed for wild ungulates.
To monitor and manage escaped and/or abandoned horses.	The impact of escaped and/or abandoned horses will be minimize through appropriate management practices.

Minerals

provide opportunities for industry explore coal bearing formations in Nordegg coal field and other ntial coal areas within the RMA.	

Minerals

Resource Management Objectives	Resource Management Guidelines
To provide opportunities for industry to explore and develop petroleum and nature gas resources of the Nordegg gas field and other areas and formations.	

Access

To maintain appropriate access.	The proposed forest land use zone or equivalent regulations will restrict motorized access in the upper Brown Creek area. Common corridors and existing access will be used where possible. Access management (e.g., designated vehicle routes) is required to meet a variety of resource management objectives.

Summary and Implications

The resource values within the Brown Creek RMA are capable of providing significant economic and social benefits. These benefits include. hunting, trapping and fishing; auto access camping; staging for hikers and equestrian users into the adjacent Blackstone-Wapiabi RMA; sustained yield timber production; forage production for wildlife; production of natural gas; and potential production of petroleum and coal.

Management required for this RMA includes: regulation of forest management and other resource activities; co-ordinated planning of access development; regulation of access through forest land use zone or equivalent regulations (in the Brown Creek area, an extension of the access control area proposed in Blackstone-Wapiabi RMA) and other access management; reclamation of trails and stream crossings; watershed monitoring; co-ordinated sustained yield timber management, including wildlife habitat enhancement and landscape logging; maintenance of auto access campgrounds; development of two staging areas (adjacent to the Blackstone-Wapiabi RMA); and managing of forage.

The key management technique within this RMA is access management, through proposed forest land use zone and/or other methods, such as designated vehicle routes. Control of escaped and/or abandoned horses may also be required to achieve the desired wildlife population objectives.

5. PLAN MANAGEMENT

General procedures and mechanisms proposed for implementation, monitoring and amendment of the Nordegg-Red Deer River Sub-Regional Plan are outlined in this section.

General Implementation

The Nordegg-Red Deer River plan will be implemented within the existing government framework of legislation, agency responsibilities, policies and administrative mechanisms. The plan will be considered to be implemented when it is providing direction for government resource management activities and public resource use within the planning area. The direction provided in the plan for government resource management activities will be translated into existing, new or modified resource management programs, projects, operational plans and administrative procedures such as referral systems. How this is to be accomplished will be described in a supplemental document entitled Nordegg-Red Deer River Sub-Regional Plan: Plan Management. This document will identify lead agency responsibilities for achieving specific objectives and will establish a priority work program for carrying out specific initiatives proposed in the plan. The plan direction for public resource use activities within the planning area will eventually be translated into normal disposition mechanisms such as permits, licences and leases.

Government resource management agencies who are participating in implementation of the Nordegg-Red Deer River plan will have several responsibilities to ensure the effective delivery of the plan. Agencies will ensure that their resource management activities are consistent with the direction contained in the plan. Each agency will also ensure that public use of those resources for which the agency is responsible, occurs in a manner which is consistent with the plan.

The agencies will also deal with any conflicts or concerns which arise with respect to implementation or interpretation of any provisions of the plan. These responsibilities are outlined by subject area below:

Referral System: Participating government management agencies will ensure that existing referral systems of the Alberta Government

(e.g., Internal Referral Systems of Alberta Energy and Natural Resources) are comprehensive and encompass all affected or concerned agencies within the planning area.

Plan Monitoring: The Nordegg-Red Deer River plan will be reviewed annually by the Eastern Slopes Regional Resource Management Committee to:

- assess the relevance of the specified resource management objectives in light of changing conditions and new information;
- assess the effectiveness of the resource management guidelines in achieving plan intents and objectives;
- ensure the consistency of agency operational plans with the intents, objectives and guidelines contained in the Nordegg-Red Deer River plan;
- solicit public comments on the progress of plan implementation; and
- recommend amendments to the Nordegg-Red Deer River plan and future actions required to maintain or promote government resource management activities in the planning area.

An annual report will document changes in the plan. The report will also highlight the previous year's activity in the planning area, including the number, type and location of referrals and what conflicts or concerns were addressed and resolved. The report will also indicate what might be expected to be accomplished in the planning area during the next year. The report may be deferred if it is not needed because of a lack of activity or progress towards government resource management objectives within the planning area. A summary of this report will be made available to the public.

A major plan review by the Eastern Slopes Regional Resource Management Committee will normally occur at five-year intervals to facilitate:

- a comprehensive assessment of all aspects of the plan, including but not limited to broad resource management objectives, zoning and resource management area boundaries and intents;

- a public review with the public involved in the same manner as in the development of new integrated resource plans; and

- a statement recommending amendments to the plan and future actions required to maintain or promote government resource management activities in the planning area.

A five year report will document all amendments. Major plan reviews may be undertaken more frequently than every five years if required by major resource policy commitments or development of program initiatives. Major plan reviews may also be deferred, if appropriate or necessary.

Amendment Procedures. Changes to the broad planning area resource management objectives, zoning, activity/zone matrix and the resource management area boundaries and intents will require major amendment to the Nordegg-Red Deer River Sub-Regional Plan. An amendment to the plan may be required as a result of an annual review, major five year review, government request or as a result of a request from an individual, group or organization outside the government. Proposed amendments to the Nordegg-Red Deer River Plan from outside the government should be made by formal application to the Assistant Deputy Minister, Resource Evaluation and Planning Division, Alberta Energy and Natural Resources. Opportunities for review of proposed amendments to the Nordegg-Red Deer River plan by the general public will be provided before changes are approved by the government. Public meetings may be held if requested by members of the public. A decision on requests to amend an integrated resource plan will be made by the Associate Minister of Public Lands and Wildlife or his designate. Amendments which entail a major policy decision may be forwarded to the Cabinet Committee on Economic Planning and Resource Development for decision.

R.17 R.16 R.15 R.14

116° 00'

Tp. 39

Tp. 38

Tp. 37

BIG HORN INDIAN RESERVE 144A

SASKATCHEWAN RIVER

Bighorn River

Crescent Falls

CRESCENT FALLS

Trepee Creek

NORTH

Tershishnet Creek

Kidd Creek

Dam

Dam

DAVID THOMPSON HIGHWAY

Allstones Creek

Crooked Creek

WINDY POINT

WINDY POINT

Abraham Lake

MOUNT MICHENER

CLINE

KISKA

BRAZEAU

Jock Creek

Gap Lake

Easy Creek

NORTH RAM RIVER

FORESTRY TRUNK ROAD

Side Creek

Pinto Creek

Otter

FOOTHILLS

5

2

4E

R.15 R.14 R.13 R.12 R.11

116° 00'

BRAZEAU

Creek

Jack

Trout

Creek

Lundine

Creek

Lewis Creek

Creek

RAM

Meadows

Creek

Rusk

MEADOWS

Gap Lake

Easy Creek

Medwa

Creek

Crossing Creek

Creek

NORTH RAM RIVER

FORESTRY TRUNK ROAD

North Ram River

River

Side Creek

Otter

Pinto Creek

ROCKY MOUNTAIN FOOTHILLS

Crescent

2

4E

5

R.13 R.12 R.11 R.10 R.9

REVISED EASTERN SL

LAND USE ZONES

1. Prime Protection
2. Critical Wildlife
3. Special Use
4. General Recreation
5. Multiple Use
6. Agriculture
7. Industrial
8. Facility

Patent Land

Green Area/White Area Boundary (proposed)

R.10 R.9 R.8 R.7 R.6

115° 00'

Tp. 39

Tp. 38

Tp. 37

REVISED EASTERN SLOPES ZONING

LAND USE ZONES

1. Prime Protection
2. Critical Wildlife
3. Special Use
4. General Recreation
5. Multiple Use
6. Agriculture
7. Industrial
8. Facility

Patent Land

Green Area/White Area Boundary (proposed)

RESOURCE MANAGEMENT AREAS

D Clearwater - Tay

E Ram - Clearwater

F Headwaters

Resource Management Area Boundary

Access Control Area

Ecologically Significant Area

Abraham Lake

MOUNT MICHENER

CLINE

Tp. 37

Tp. 36

Tp. 35

52° 00'

KOOTENAY PLAINS

RIVER

KOOTENAY PLAINS NATURAL AREA (REVISED)

DAVID THOMPSON HIGHWAY

NORTH SASK.

Whitetail Creek

North Onion Lake

Onion Creek

Hummingbird Creek

(Canary Creek)

FRONT RANGE

1

4E

4F

5

FOOTHILLS

Otter Creek

Pinto Creek

33.52 HAM FALLS

FALLS

RAM

2

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4E
4F
4E
E
Side Creek
Otter Creek
Pinto Creek
ROCKY MOUNTAIN FOOTHILLS
Ram Creek
RAM FALLS
33 52
FALLS
RAM
RANGE
PEPPERS LAKE
Peppers Lake
ELK CREEK
Fall Creek
Crescent Creek
Glowing
TENTH BASELINE
BASELINE
Radiant
Dry Creek
Tay
Creek
Idlewilde
FORESTRY TRUNK ROAD
River
IDLEWILDE MOUNTAIN
Creek

4. General Recreation
5. Multiple Use
6. Agriculture
7. Industrial
8. Facility

Patent Land

Green Area/White Area Boundary (proposed)

Subscripts on zone labels (eg. "2L") indicate that the number of activities which are not permitted, within the particular RMA and zone, has been expanded beyond those indicated in the Table of Permitted Activities (Table 3). See Section 4 in the text.

TENTH BASELINE

BASELINE

PRAIRIE CREEK GROUP CAMP

SWAN LAKE

Swan Lake

Crescent Creek

Fall Creek

Gloomy Creek

Radiant Creek

Idlewilde Creek

Tay River

Swan Creek

Corkscrew Creek

FORESTRY TRUNK ROAD

IDLEWILDE MOUNTAIN

SEVEN MILE

CORKSCREW MOUNTAIN

CLEARWATER

PEPPERS LAKE

ELK LAKE

Alford Lake

591

E

D

2. Critical Wildlife
3. Special Use
4. General Recreation
5. Multiple Use
6. Agriculture
7. Industrial
8. Facility

Patent Land

Green Area/White Area Boundary (proposed)

E Ram - Clearwater

F Headwaters

Resource Management Area Boundary

Access Control Area

Ecologically Significant Area

Subscripts on zone labels (eg. "2L") indicate that the number of activities which are not permitted, within the particular RMA and zone, has been expanded beyond those indicated in the Table of Permitted Activities (Table 3). See Section 4 in the text.

Tp. 37

Tp. 36

Tp. 35

52° 00'

KOOTENAY PLAINS

RIVER

KOOTENAY PLAINS NATURAL AREA (REVISED)

DAVID THOMPSON HIGHWAY

NORTH SASK

Tp. 35

52° 00'

Whitegrabbit Creek

Hummingbird Creek

(Canary Creek)

FALLS

RAM

RANGE 1

RANGE 2

RANGE 5

4F

4E

1

2

5

F

RANGE

Loudon Creek

River

SIFFLEUR MOUNTAIN

Siffleur

Escarpment

River

HEADWATERS

Ranger Creek

Ram River

SIFFLEUR WILDERNESS AREA

ICEFIELD

CEEP

WAMPUM

Indianhead Creek

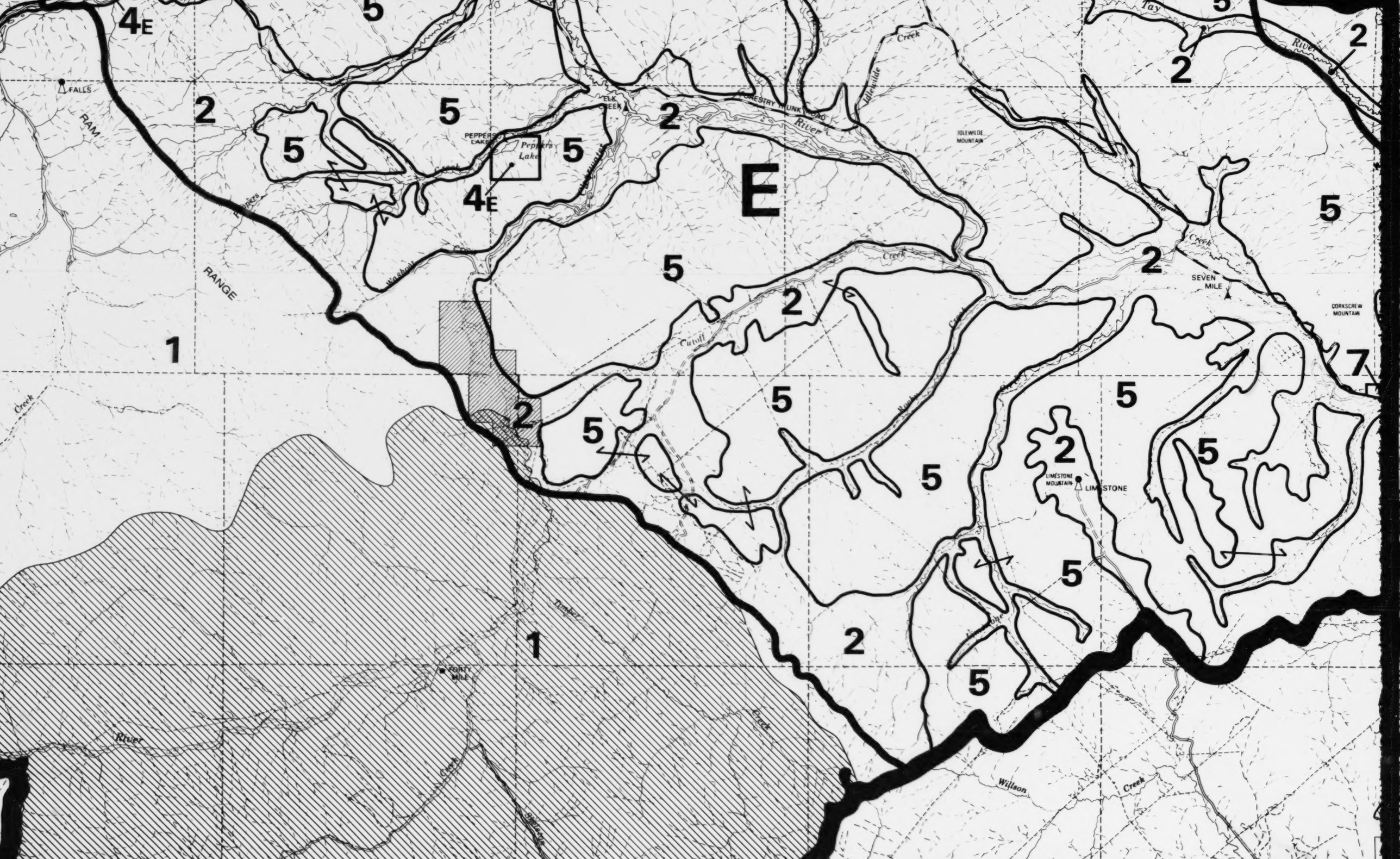
Malloch Creek

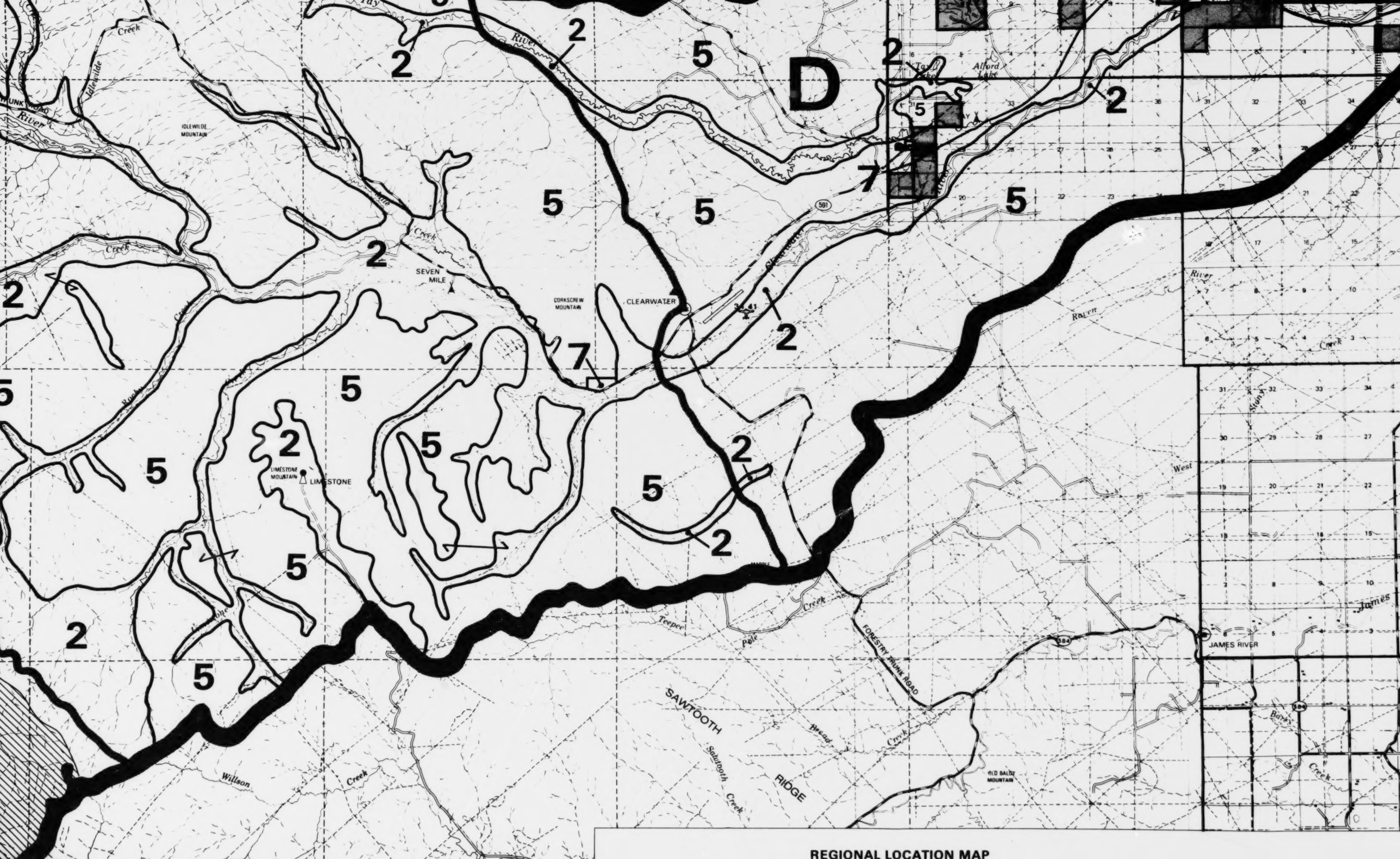
Clearwater River

MOUNT MALLOCH

Tp. 34

Tp. 33


4E
5
2
FALLS
RAM
RANGE
PEPPERS LAKE
Peppers Lake
4E
5
2
ELK CREEK
FORESTRY TRUNK ROAD
Idlewilde Creek
River
IDLEWILDE MOUNTAIN
E
5
2
5
2
Tay
River
2
5
Creek
Washout
Creek
Cutoff
5
2
SEVEN MILE
CORKSCREW MOUNTAIN
7
1
2
5
5
2
5
5
2
LIMESTONE MOUNTAIN
LIMESTONE
5
2
5
1
FORTY MILE
River
Creek
Dinker
Creek
Willson
Creek



REGIONAL LOCATION MAP

Tp. 35

52° 00'

Tp. 34

Tp. 33

REGIONAL LOCATION MAP

NORDEGG - RED DEER RIVER

Tp. 33

Tp. 32

Tp. 31

ICEFIELD

Isabella Lake

MOUNT KENTIGERN

Martin Creek

Martin Lake

MOUNT HARRIS

Trident Lake

MOUNT MALLOCH

Malloch Creek

Creek

Clearwater

River

MOUNT PETERS

Fairholme Range

Clearwater Lake

Clearwater River

Creek

Peters

CLEARWATER MOUNTAIN

MOUNT WILLINGDON

Siffleur River

CLEARWATER PASS

BANFF NATIONAL PARK

TOMAHAWK MOUNTAIN

Divide

Tyrrell

Devon Lakes

DEVON MOUNTAIN

Roaring

Dolomite Creek

Lake Alice

CIRQUE PEAK

PIPESTONE PASS

DOLOMITE PASS

Lake Katherine

DOLOMITE PEAK

Helen Creek

Mosquito Creek

Pipestone River

McConnell

MOUNT TYRRELL

Creek

RED DEER

CATARACT PEAK

MOUNT MCCONNELL

MOUNT WHITE

PROW MOUNTAIN

Crowfoot Glacier

BOW PEAK

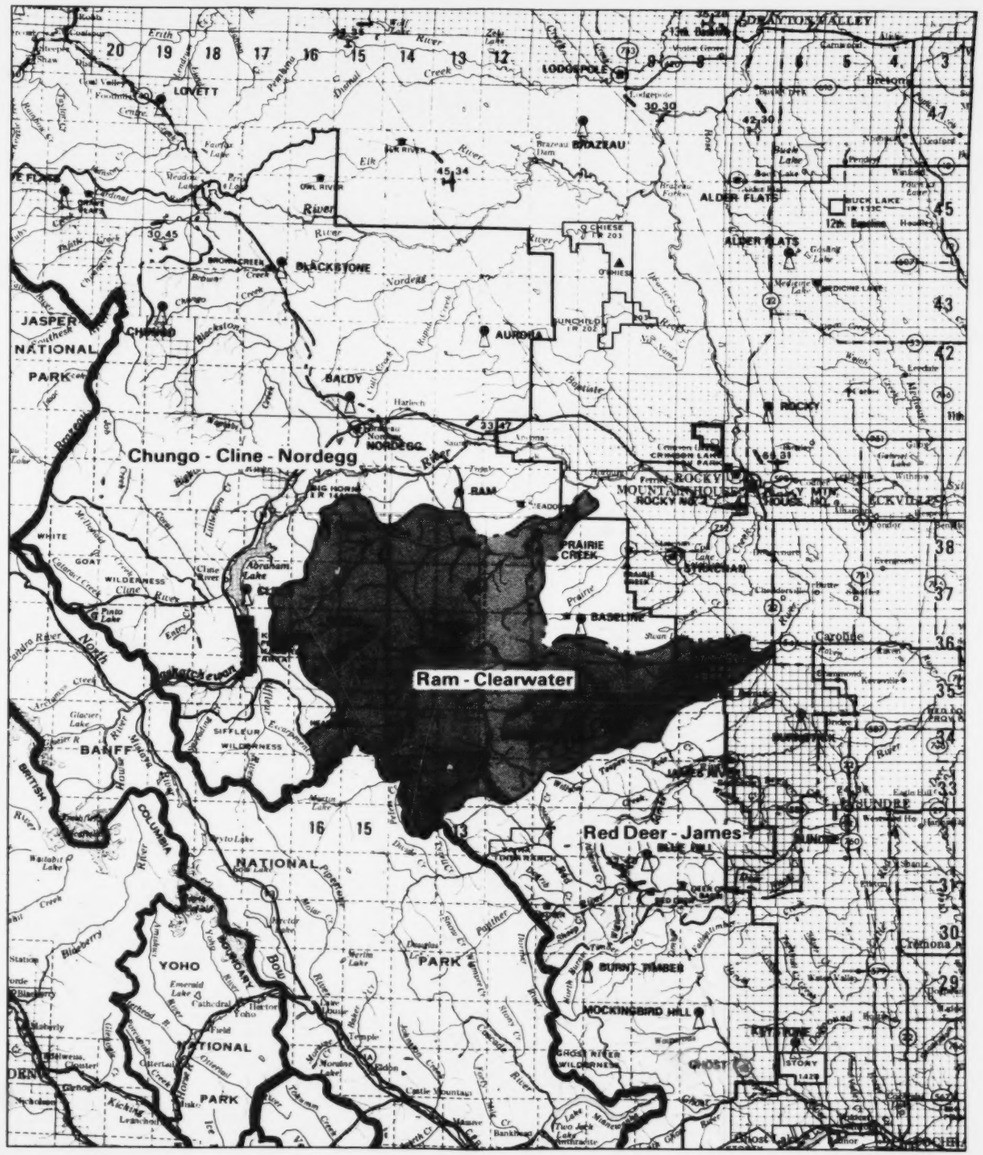
Fish Lakes

116°00'

R.17 R.16 R.15 R.14

River
Creek
Shelter
Creek
Willson
Creek
NINTH BASELINE
Scalp
Creek
Bighorn Creek
Peters
Divide
TOMAHAWK MOUNTAIN
YA-HA-TINDA RANCH
Bridgeland Creek
James
James Lake
Eagle Lake
JAMES PASS
WAPITI MOUNTAIN
Tyrrell
Creek
MOUNT TYRRELL
Creek
WARDEN ROCK
Creek
RIVER
DEER
RED
Creek
CABLE MOUNTAIN
BARRIER MOUNTAIN
MOUNT WHITE
PROW MOUNTAIN
Dogrib
Creek
RED
DEER
WILDHORSE
Wildhorse
FORESTRY TRUNK ROAD
Bashford
Creek
River
Dormer
R.14
R.13
R.12
R.11
R.10

REGIONAL LOCATION MAP



NORD
PLANNI
RAM - CLE

BASE M

HARD SURFACE all weather - p

LOOSE or STABILIZED SURFA
all weather -

LOOSE SURFACE dry weather
TRUCK TRAIL
SEISMIC LINE or TRAIL
RAILWAY
TRANSMISSION LINE
PIPE LINE
GAS PLANT / COMPRESSOR S
CANAL (ditch)
FOREST HEADQUARTERS/RA
RECREATION AREA, developed
LOOKOUT, primary/secondary/
FLOATPLANE LANDING
AIRSTRIP LENGTH and ELEVA
- regular maintenance
- occasional maintenance
HELIPORT/HELIPAD
LOCAL NAME
not recognized by the Geogra
MINE (gravel pit)
FORD

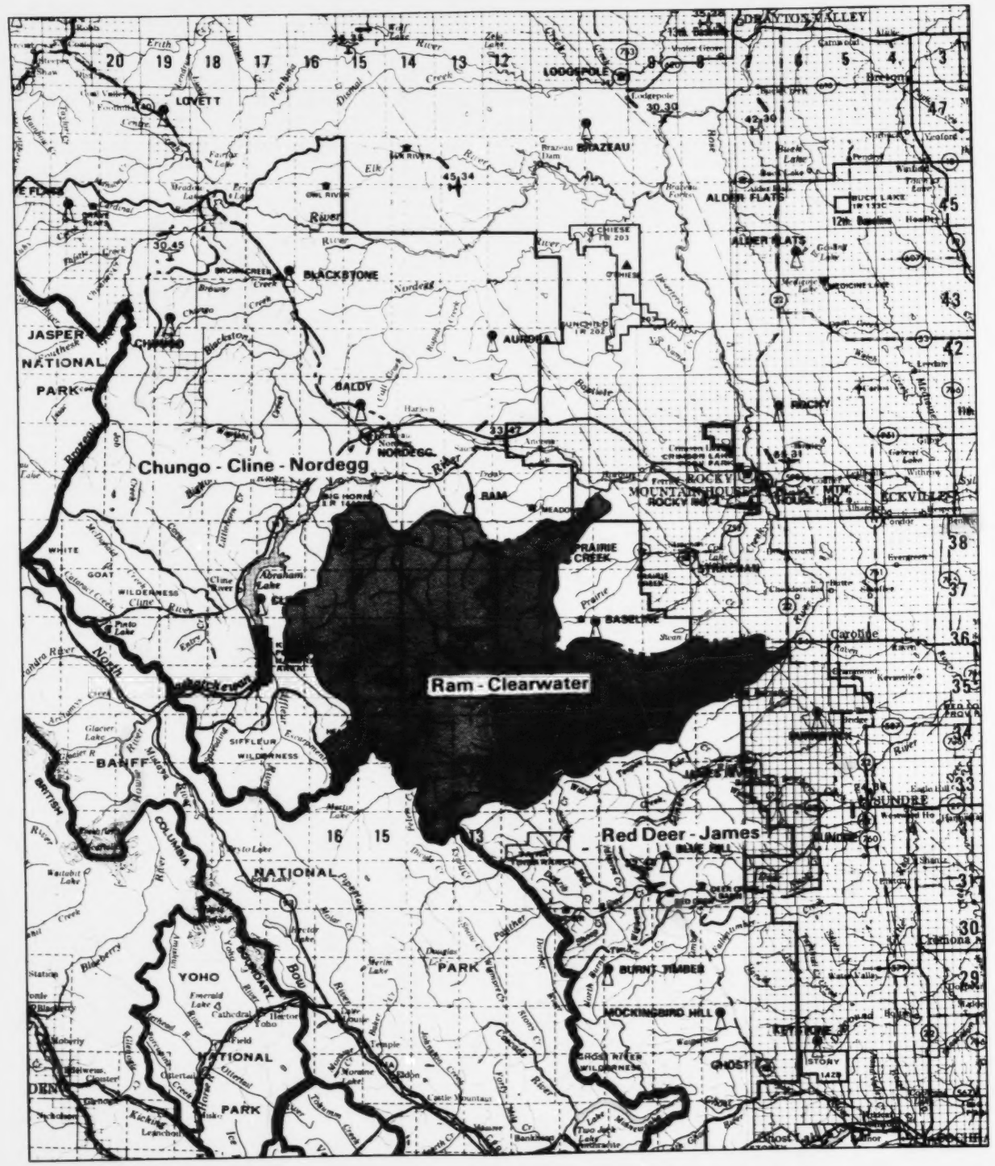
This

Kilometres 2 1
Miles 1

R.11 R.10

Tp. 33

REGIONAL LOCATION MAP



NORDEGG - RED DEER RIVER
PLANNING AREA
RAM - CLEARWATER MAP SHEET

CA2ALE@ 59
86S10 c.v

BASE MAP LEGEND

HARD SURFACE all weather - primary
- secondary

LOOSE or STABILIZED SURFACE all weather - primary
- secondary
- tertiary

LOOSE SURFACE dry weather

TRUCK TRAIL

SEISMIC LINE or TRAIL

RAILWAY

TRANSMISSION LINE

PIPE LINE

GAS PLANT / COMPRESSOR STN.

CANAL (ditch)

FOREST HEADQUARTERS/RANGER STATION/CABIN

RECREATION AREA, developed/undeveloped

LOOKOUT, primary/secondary/crawl tower or point

FLOATPLANE LANDING

AIRSTRIP LENGTH and ELEVATION (amsl) in hundreds of feet
- regular maintenance
- occasional maintenance

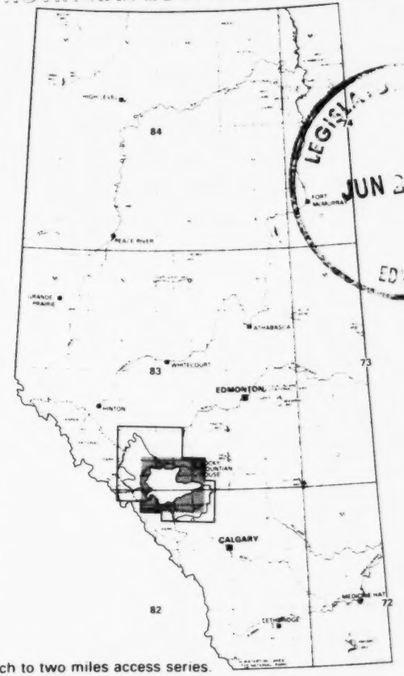
HELIPORT/HELIPAD

LOCAL NAME
not recognized by the Geographical Names Board.

MINE (gravel pit)

FORD

PROVINCIAL LOCATION KEY MAP



LEGISLATIVE ASSEMBLY
JUN 26 1986
EDMONTON

This map was derived from the one inch to two miles access series.

SCALE 1:100 000

UNIVERSAL TRANSVERSE MERCATOR PROJECTION

Kilometres 2 1 0 2 4 6 8 10 Kilometres
Miles 1 0 1 2 3 4 5 6 Miles

WEST OF THE FIFTH MERIDIAN
N.T.S. 83B,C 82N,O
1984

Alberta
ENERGY AND NATURAL RESOURCES
Resource Evaluation and Planning Division

R.10

R.13 R.12 R.11 R.10 R.

Tp. 36

Tp. 35

52° 00'

Tp. 34

Lynx Creek
Ram River
RAM FALLS
Ram
Elk
Creek
Radiant
Creek
ELK CREEK
Clearwater
PEPPERS LAKE
Peppers Lake
Peppers Creek
Washout Creek
Cutoff Creek
Creek
River
Idlewilde Creek
IDLEWILDE MOUNTAIN
FORESTRY TRUNK ROAD
Seven Mile Creek
CORKSCREW MOUNTAIN
BASELINE
BASELINE
Swan
Creek
River
SEVEN MILE
CLEARWATER
LIMESTONE
LIMESTONE MOUNTAIN
Rocky Creek
Creek
Pineneedle
River
Tumbler
5

R.10 R.9 R.8 R.7 R.6

115° 00'

SWAN LAKE
Swan Lake
Swan Creek
Phyllis Lake
PHYLLIS LAKE
Creek
Alford Creek
Ricinus
Clearwater River
Tay Lake
Alford Lake
TAY RIVER
CORKSCREW MOUNTAIN
CLEARWATER
River
Raven River
Creek
Beaver Lake
Burnstick Lake
Stony Creek
West
BURNSTICK
Parkee
MARBLE MOUNTAIN
Cram

5 2 C 4 6 8

CA2 ALE Ø 59
86S10 c.2

R.7 R.6 R.5

Tp. 36

Tp. 35

52° 00

Tp. 34

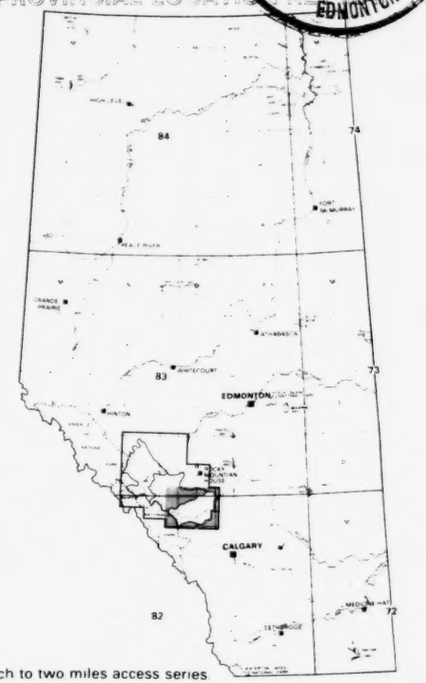
NORDEGG - RED DEER RIVER
PLANNING AREA
RED DEER - JAMES MAP SHEET

JUN 6 ...
EDMONTON

BASE MAP LEGEND

- HARD SURFACE all weather - primary (1)
  - secondary (36)
- LOOSE or STABILIZED SURFACE all weather - primary (1A)
  - secondary (N22)
  - tertiary
- LOOSE SURFACE dry weather
- TRUCK TRAIL
- SEISMIC LINE or TRAIL
- RAILWAY
- TRANSMISSION LINE
- PIPE LINE
- GAS PLANT / COMPRESSOR STN.
- CANAL (ditch)
- FOREST HEADQUARTERS/RANGER STATION/CABIN
- RECREATION AREA, developed/undeveloped
- LOOKOUT, primary/secondary/crawl tower or point
- FLOATPLANE LANDING
- AIRSTRIP LENGTH and ELEVATION (amsl) in hundreds of feet (35 17)
  - regular maintenance
  - occasional maintenance
- HELIPORT/HELIPAD
- LOCAL NAME ( )
  not recognized by the Geographical Names Board.
- MINE (gravel pit)
- FORD

PROVINCIAL LOCATION KEY MAP



This map was derived from the one inch to two miles access series.

SCALE 1:100 000

UNIVERSAL TRANSVERSE MERCATOR PROJECTION

Kilometres 2 1 0 2 4 6 8 10 Kilometres

Miles 1 0 1 2 3 4 5 6 Miles

WEST OF THE FIFTH MERIDIAN

N.T.S. 82O, 83B

Alberta

ENERGY AND NATURAL RESOURCES

Resource Evaluation and Planning Division

Tp. 34

Tp. 33

Tp. 32

LIMESTONE

LIMESTONE MOUNTAIN

FORTY MILE

Clearwater

River

Timber

Creek

Rocky

Limestone

Pineneedle

Creek

Creek

Sheldon

Creek

Creek

Fishhawk

Creek

Creek

Fishhawk

Creek

NINETH BASELINE

Bridgeland

Creek

Creek

Creek

B

C

Pineneedle Creek

MARBLE MOUNTAIN

Trapper Baldy

SAWTOOTH RIDGE

Bread Creek

South James River

JAMES WILSON RIDGE

STRAWBERRY

Whiskey Jack Crossing

TRUNK

Creek

Windhill Creek

GREAT WEST RIDGE

Williams Lake

BLUEHILL

MCMURTRY RIDGE

Island Muskeg

PARKER RIDGE

ROCKY MOUNTAIN FOREST RESERVE

JAMES RIVER

Berry Creek

Beaverberry Creek

STAENE RIDGE

Bentz Lake

Coalcamp Creek

Cartier Creek

DEER

Community

Alberta

ENERGY AND NATURAL RESOURCES

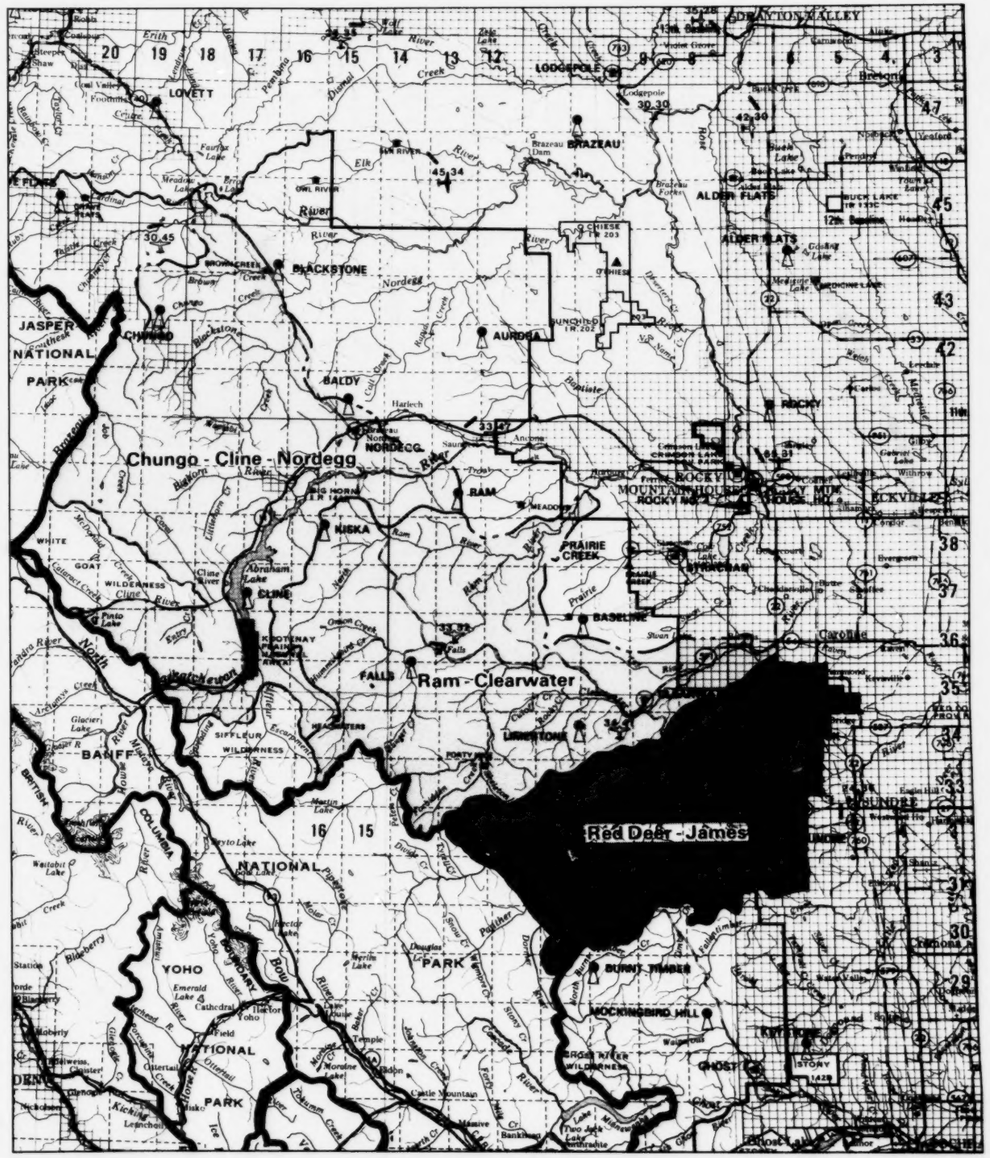
Resource Evaluation and Planning Division

Tp. 34

Tp. 33

Tp. 32

REGIONAL LOCATION MAP



REVISED EASTERN SLOPES ZONING

Tp. 32

Tp. 31

Tp. 30

1

2A

3

RANCH

YA HA TINDA

RIVER

4A

2

5

1

4B

8

2

2

TRUNK 2

BLUEHILL

1

A

BANFF NATIONAL PARK

1

5

1

TOMAHAWK MOUNTAIN

Creek

Bridgeland

James River

James Lake

Tyrell

MOUNT TYRELL

DEER

RED

GABLE MOUNTAIN

BARRIER MOUNTAIN

MOUNT WHITE

Dogrib

River

Creek

WILDHORSE

RED DEER RIVER

RED DEER

Panther

River

Klein Lake

PANTHER

BARE RANGE

Snow

Creek

Panther

Dormer

Sheep

Creek

Wildhorse Creek

Buckhorn Creek

Burnt

Creek

B

Whiskey Jack Crossing

TRUNK 2

Badgerland

Jame River

Wardell

GREAT WEST RIDGE

MCMURTRY RIDGE

Island Muskeg

Williams Creek

BLUEHILL

Wildhorse Creek

Bankfoot Creek

Lowery Creek

Bear Creek

Bull Creek

WILDHORSE

RED DEER RIVER

RED DEER

HUNTER

DEER CREEK

Panther River

Klein Lake

McLeod Creek

Stud Creek

BURNT TIMBER

FORESTRY TRUNK ROAD

Burnt Timber Creek

Wigwam Creek

Fallentimber Creek

Van Creek

SLAENE RIDGE

Bentz Lake

Coalcamp Creek

Cartier Creek

Stormy Creek

Borgy Lake

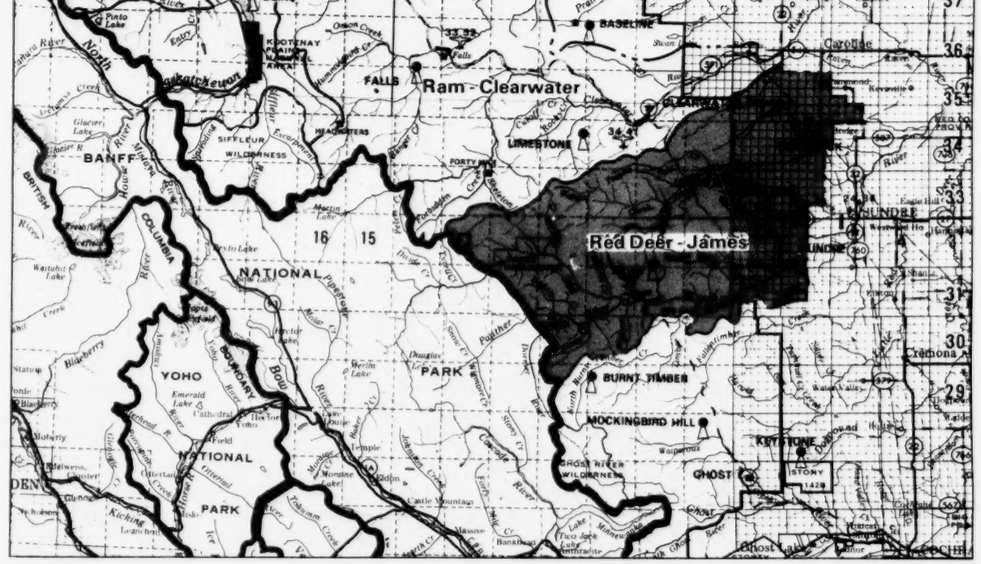
Mouse Creek

Turnbull Creek

Tp. 32

Tp. 31

Tp. 30



REVISED EASTERN SLOPES ZONING

RESOURCE MANAGEMENT AREAS

A Red Deer - Panther

B Red Deer - Willson

C Red Deer - Raven

LAND USE ZONES

1. Prime Protection
2. Critical Wildlife
3. Special Use
4. General Recreation
5. Multiple Use
6. Agriculture
7. Industrial
8. Facility

Green Area/White Area Boundary

Patent Land

Access/Control Area

Tp. 31

Tp. 30

Tp. 29

51° 30

R.13

R.12

R.11

R.10

A

1

2

2A

4A

4B

5

MOUNT TYRELL

Tyrell Creek

RAPID PLAIN

WARDEN HILL

RED DEER RIVER

GABLE MOUNTAIN

BARRIER MOUNTAIN

MOUNT WHITE

BANFF NATIONAL PARK

Dogrib River

RANGE

Snow Creek

Wigmore Creek

PANTHER MOUNTAIN

Panther River

Dormer River

Sheep Creek

Burnt Timber Creek

North Burnt Timber Creek

BURNT TIMBER

PANTHER

WILDHORSE

BLUEHILL

Wildhorse Creek

Beaufort Lake

Red Deer River

Hunter Creek

Klein Lake

Wiau Creek

Wiau Creek

BLUEHILL

WILDHORSE

RED DEER RIVER

RED DEER

DEER CREEK

HUNTER

Wildhorse Creek

Beaklust Creek

Lawson Creek

Bear Creek

Bull Creek

RIDGE

Williams

Coalcamp Creek

Cartier Creek

Creek

HIGHLAND RIDGE

BEAR VALLEY

Panther River

Klein Lake

Stud Creek

Creek

Vam Creek

BURNT TIMBER

FORESTRY TRUNK ROAD

Wiwaxa

Burnt Timber Creek

Timber Creek

Burnt

Fallentimbet

Creek

Stormy Creek

Mouse Creek

Grease Creek

Creek

Boggy Lake

Creek

ROCKY MOUNTAIN FOREST RESERVE

Turnbull Creek

Creek

Creek

4B

4C

8

2

4

5

6

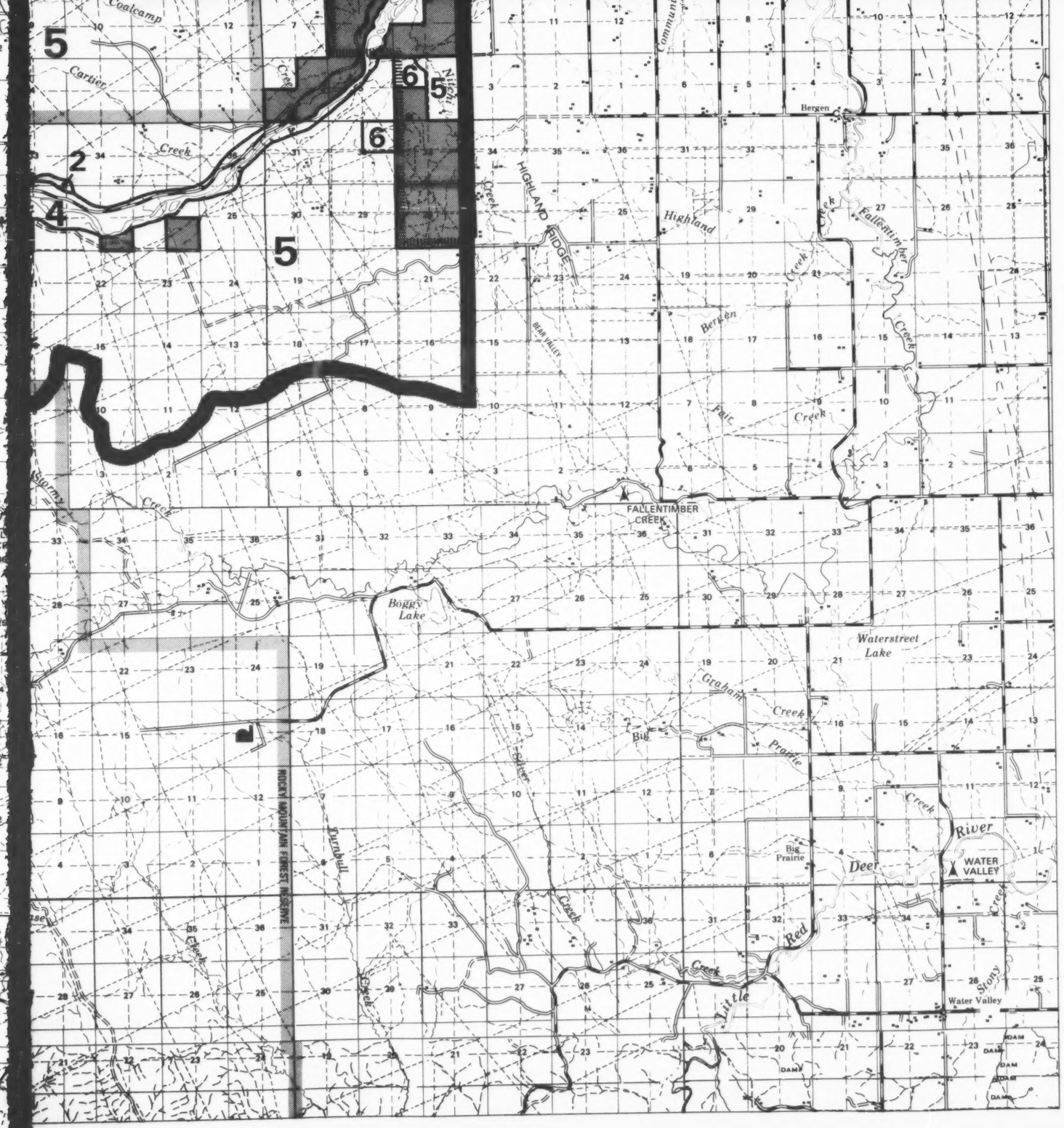
R.10

R.9

R.8

R.7

115° 00'



REVISED EASTERN SLOPES ZONING

RESOURCE MANAGEMENT AREAS

- **A** Red Deer - Panther
- **B** Red Deer - Willson
- **C** Red Deer - Raven

LAND USE ZONES

1. Prime Protection
2. Critical Wildlife
3. Special Use
4. General Recreation
5. Multiple Use
6. Agriculture
7. Industrial
8. Facility

Green Area/White Area Boundary

Patent Land

Access Control Area

Ecologically Significant Area

Resource Management Area Boundary

Subscripts on zone labels (eg. "2L") indicate that the number of activities which are not permitted, within the particular RMA and zone, has been expanded beyond those indicated in the Table of Permitted Activities (Table 3). See Section 4 in the text.

R.21 R.20 R.19 R.18 R.17

117° 00'
53° 00'

Tp. 46
Tp. 45
Tp. 44

Pembina River
Baily Creek
Creek
Hanson Creek
Grave Creek
GRAVE FLATS
Cardinal Creek
Meshiki Creek
Meshiki Lake
Ruby Creek
Flapjack Lake
Thistle Creek
Crooked River
Moose Lake
Fairfax Lake
FAIRFAX LAKE
FORKS
Meadows Lake
Error Lake
CARDINAL
Thunder Lake
Marshybank Creek
Marshybank Lake
Canyon Creek
Blanchard Creek
Ashbaker Creek
Mt. Clermont
Elk River
WILLS
5
2
GRAZEAU RIVER
Brazeau River
JOHN D'OR PRAIRIE ROAD
BROWN CREEK

CA2 ALED 59
86S10 c.v

R.18

R.17

Tp. 46

Tp. 45

Tp. 44

FAIRFAX LAKE

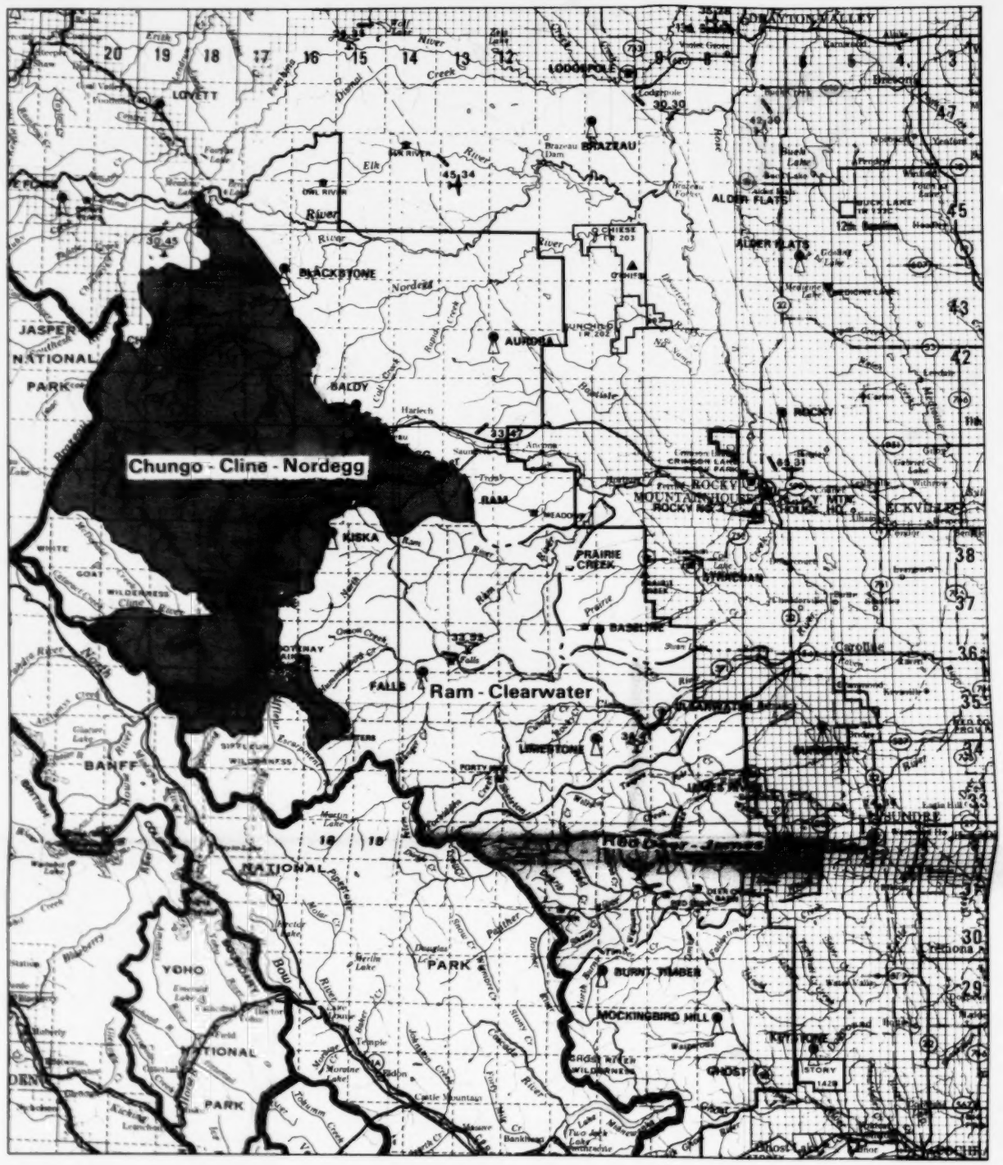
FORKS

BRAZEAU RIVER

BLACKSTONE

5

REGIONAL LOCATION MAP



R.15

116° 00'

CA2 ALED 59
86S10 c.v

NORDEGG - RED DEER RIVER
PLANNING AREA
CHUNGO - CLINE - NORDEGG MAP SHEET

REGIONAL LOCATION MAP

BASE MAP LEGEND

HARD SURFACE all weather - primary
- secondary

LOOSE or STABILIZED SURFACE
all weather - primary
- secondary
- tertiary

LOOSE SURFACE dry weather

TRUCK TRAIL

SEISMIC LINE or TRAIL

RAILWAY

TRANSMISSION LINE

PIPE LINE

GAS PLANT / COMPRESSOR STN.

CANAL (ditch)

FOREST HEADQUARTERS/RANGER STATION/CABIN

RECREATION AREA, developed/undeveloped

LOOKOUT, primary/secondary/crawl tower or point

FLOATPLANE LANDING

AIRSTRIP LENGTH and ELEVATION (amsl) in hundreds of feet
- regular maintenance
- occasional maintenance

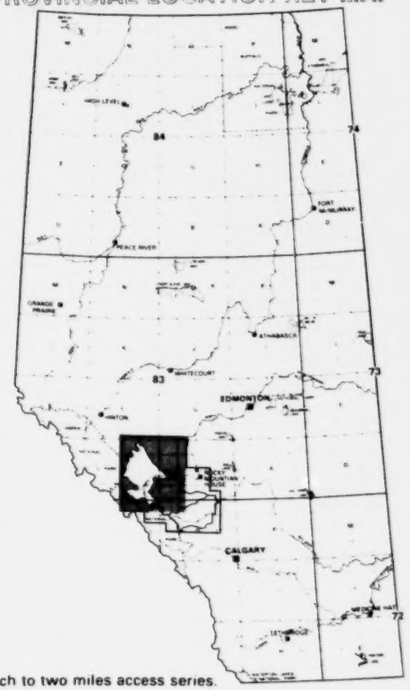
HELIPORT/HELIPAD

LOCAL NAME
not recognized by the Geographical Names Board.

MINE (gravel pit)

FORD

PROVINCIAL LOCATION KEY MAP



This map was derived from the one inch to two miles access series.

SCALE 1:100 000

UNIVERSAL TRANSVERSE MERCATOR PROJECTION

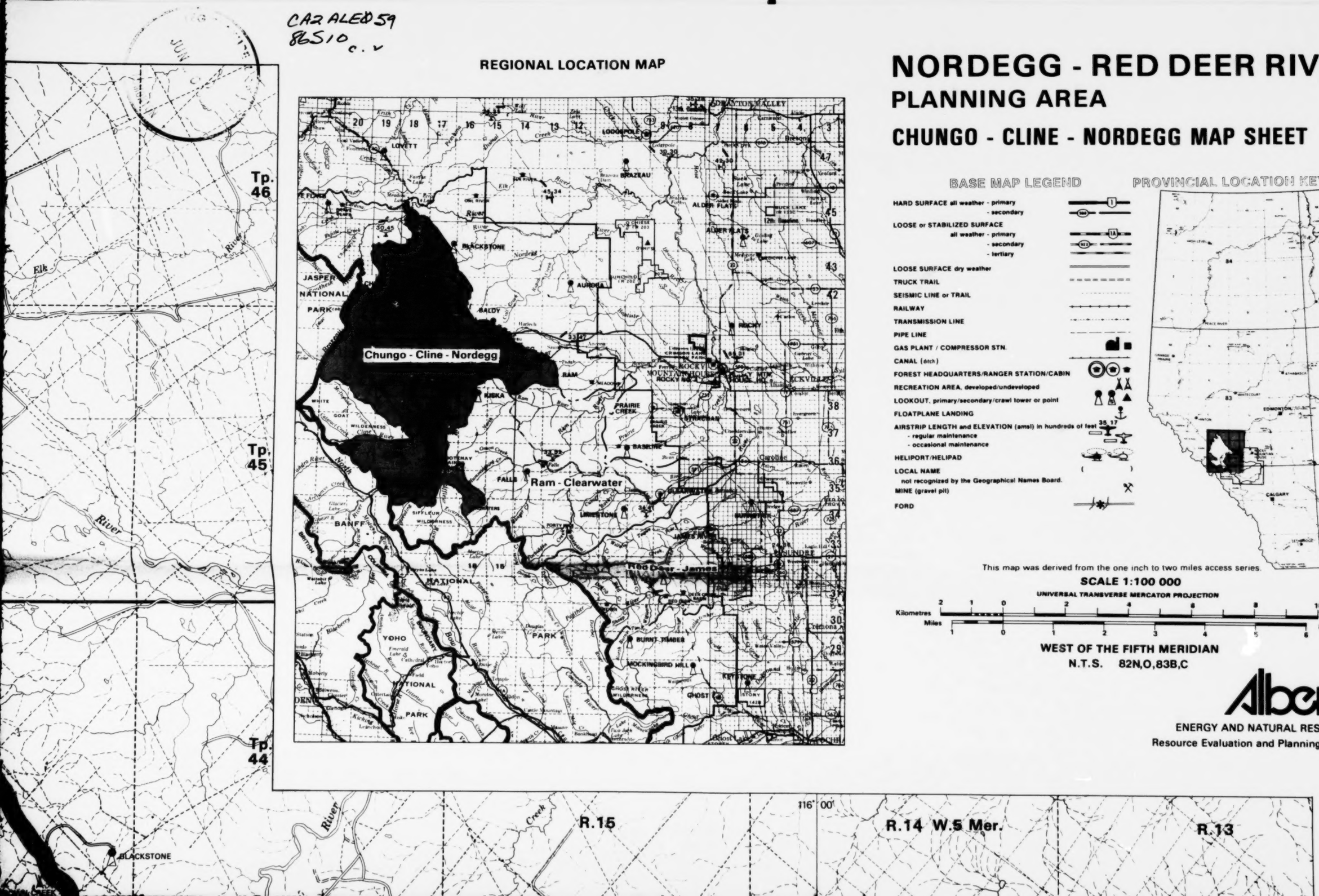
Kilometres 2 1 0 2 4 6 8 10 Kilometres
Miles 1 0 1 2 3 4 5 6 Miles

WEST OF THE FIFTH MERIDIAN

N.T.S. 82N,O,83B,C

Alberta

ENERGY AND NATURAL RESOURCES
Resource Evaluation and Planning Division



Tp. 44

Tp. 43

Tp. 42

Ruby Creek

Flapjack Lake

Thistle Creek

Creek River

Marshybank Lake

Canyon

Ashlar Ridge

Mt. Clarke

Brown Creek

Clark Creek

Creek

Nation River

Cairn River

Southesk River

SARACEN HEAD

MOUNT DALHOUSIE

JASPER NATIONAL PARK

F R O N T R A N G E S

CHUNGO

BIG HORN

Chungo Creek

Creek

TARPEIAN

1

2

2L

5

M

Tp. 44

116° 00'

R.15

REVISED E

RESOUR

5

2

5

BLACKSTONE

BROWN CREEK

2

M

5

2

1

5

5

BLACKSTONE

FORESTRY TRUNK ROAD

WEST OF THE FIFTH MERIDIAN
N.T.S. 82N,O,83B,C

Alberta
ENERGY AND NATURAL RESOURCES
Resource Evaluation and Planning Division

Tp. 44

R.15

116° 00'

R.14 W.5 Mer.

R.13

REVISED EASTERN SLOPES ZONING

LAND USE ZONES

1. Prime Protection
2. Critical Wildlife
3. Special Use
4. General Recreation
5. Multiple Use
6. Agriculture
7. Industrial
8. Facility

RESOURCE MANAGEMENT AREAS

- G Whiterabbit Creek
- H Kootenay Plains
- I Cline River
- J Bighorn River
- K Nordegg
- L Blackstone-Wapiabi
- M Brown Creek

BLACKSTONE
BROWN CREEK
Blackstone
FORESTRY TRUNK ROAD
Nordegg
Upper Run
Owl
Grey
5

Tp. 43

Tp. 42

Tp. 42

Tp. 41

52° 30'

Tp. 40

Cairn

Southesk River

MOUNT DALHOUSIE

JASPER NATIONAL PARK

F R O N T R A N G E S

TARPEIAN ROCK

Isaac Creek

MOUNT ISAAC

VALLEY HEAD MOUNTAIN

ARETE MOUNTAIN

Job

Whisker Creek

Whisker Lakes

Obstruction

FIRST

Chance Creek

Big Horn Creek

Blackstone Creek

Mons Creek

Cutoff Creek

Smoke Creek

4TH BASE LINE

1

2L

2

5

M

L

M

L

2L

1

2

5

8

4K

BLACKSTONE RIVER

Blackstone Creek

FORESTRY TRUNK ROAD

BRAZEAU

SHUNDA MOUNTAIN

BALDY

COTTONWOOD MOUNTAIN RANGE

UPPER SHUNDA GROUP CAMP

NORDEGG

SHUNDA BEAVERDAM

SHUNDA BEAVERDAM OVERFLOW

(abandoned)

(Brazeau Station)

FISH LAKE

GOLDEYE LAKE

Shunda Lake (Fish Lake)

SNOW CREEK GROUP CAMP

HAVEN CREEK

BLACK MOUNTAIN

4TH BASE LINE

Haven Creek

Shunda Creek

Nordegg River

Stauffer Creek

Sturrock Creek

Saunders Creek

Smoky River

7. In

8. Fa

RESOURCE M

G Wh

H Ko

I Cli

J Big

K No

L Bla

M Br

Access

Ecologic

Subscripts on zone labe
which are not permitt
expanded beyond tho
(Table 3). See Section 4

6. Agriculture
7. Industrial
8. Facility

RESOURCE MANAGEMENT AREAS

G Whiterabbit Creek

H Kootenay Plains

I Cline River

J Bighorn River

K Nordegg

L Blackstone-Wapiabi

M Brown Creek

Resource Management Area Boundary

Access Control Area

Ecologically Significant Area

Subscripts on zone labels (eg. "2L") indicate that the number of activities which are not permitted, within the particular RMA and zone, has been expanded beyond those indicated in the Table of Permitted Activities (Table 3). See Section 4 in the text.

Tp. 42

Tp. 41

Tp. 40

52° 30'

Tp. 40

Tp. 39

Tp. 38

FRONT RANGES

J

1

2

4K

4H

4

5

2L

FIRST

Creek

Whisker Lakes

Obstruction Lakes

OBSTRUCTION MOUNTAIN

LONGVIEW MOUNTAIN

MOUNT McDONALD

Job Pass Creek

Bighorn River

MOUNT McGUIRE

Creek

Tershishner Creek

DAVID THOMPSON HIGHWAY

AFTERNOON PEAK

McDonald Creek

Coral Creek

RANGE

Littlehorn Creek

Allstones Lake

Allstones Creek

Whitegrass Creek

Windy Point

CLINE PASS

MOUNT STEWART

WHITE GOAT WILDERNESS

Cataract Creek

CLOISTER

MOUNT STELFOX

(Cline Creek)

Abraham Lake

J

R A N G E S

RANGE

1

5

2L

2

4K

4H

3

7

8

4K

UPPER SHUNDA GROUP CAMP

UPPER SHUNDA CREEK

BLACK MOUNTAIN

GOLDEYE LAKE

FISH LAKE

Shunda Lake (Fish Lake)

SNOW CREEK GROUP CAMP

HAVEN CREEK

K

SASKATCHEWAN

BIG HORN INDIAN RESERVE 144A

BIGHORN CANYON

CRESCENT FALLS

Crescent Falls

River

MOUNT McGUIRE

Tershishner

DAVID THOMPSON HIGHWAY

Viewpoint

Dam

Big Horn Lake

Allstones Lake

Windy Point

KISKA

Kiska

Joyce

Creek

Whitegoat

Littlehorn

Allstones

Bighorn

Whisker Lakes

Starrock

Canyon

Teepee

NORTH

4TH BASE LINE

expanded beyond those indicated in the Table of Permitted Activities (Table 3). See Section 4 in the text.

52° 30'

Tp. 40

Tp. 39

Tp. 38

RANGE

UPPER SHUNDA GROUP CAMP

NORDEGG

SHUNDA BEAVERDAM

SHUNDA BEAVERDAM OVERFLOW

DAVID THOMPSON HIGHWAY

Canadian National Railway

SHUNDA VIEWPOINT

(abandoned)

(Brazeau Station)

BRAZEAU

BLACK MOUNTAIN

GOLDEYE LAKE

FISH LAKE

Shunda Lake (Fish Lake)

SNOW CREEK GROUP CAMP

HAVEN CREEK

SASKATCHEWAN

RIVER

CRESCENT FALLS

BIGHORN CANYON

BIG HORN INDIAN RESERVE 144A

NORTH RAM RIVER

FORESTRY TRUNK ROAD

KISKA

MOUNTAIN)

Dizzy

Ram

Joyce

Kiska

Haven

Deep

Dutch

Gap

Jock

Lynch

Philip

Sturrock

Teepee

Crescent Falls

Viewpoint

Dam

Creek

River

Tp. 38

Tp. 37

Tp. 36

CLINE PASS

MOUNT STEWART

WHITE GOAT WILDERNESS

Cataract Creek

CLOISTER MOUNTAINS

RANGE

CIRRUS MOUNTAIN

Huntington Glacier

Huntington Creek

Creek

Blue River

Creek

MINISTER MOUNTAIN

Falls Creek

Prato Lake

MOUNT COLEMAN

SUNSET PASS

NORTH

Norman Lake

Norman Creek

Alexandra River

93

SASKATCHEWAN

Rampart Creek

Wilson

MOUNT AMERY

Waterfalls Creek

Whitewool Creek

MOUNT STELFOX

(Cline Creek)

Cline Creek

Windy Point

4H

Abraham Lake

MOUNT MICHENER

8

Cline River

DAVID THOMPSON RESORT

2H

4H

CLINE

River

11

10TH BASE LINE

SENTINAL MOUNTAIN

ELLIOT PEAK

RANGE

MOUNT ERNEST NOSS

PURPLE MOUNTAIN

Lake of Falls

MOUNT CLINE

RESOLUTE MOUNTAIN

Ridge

1

1

1

4H

3

3

1

KOOTENAY PLAINS

A

Lower Sulphur Falls

1
5
5
2
2
Windy Point
4H
Abraham Lake
MOUNT STELFOX
Cline Creek
Creek
8
Cline River
DAVID THOMPSON RESORT
2H
4H
MOUNT MICHENER
1
CLINE
RANGE
River
10TH BASE LINE
SENTINAL MOUNTAIN
ELLIOT PEAK
RANGE
Creek
Kiska
North
Creek
River
Ram
F R O N T
R A N G E
G
1
1
4H
3
3
1
Onion Lake
North
Onion
Creek
RAM
Hummingbird
Canary
Creek
Lower Sulfur Falls
Whiterabbit

Tp. 38

Tp. 37

Tp. 36

4H

5

2

1

FRONT RANGES

Crooked

Kiska

North Ram River

Creek

River

Ram

Cripple Pass

FORESTRY TRUNK ROAD

Lynx Creek

Onion Lake

Onion Creek

North

MOUNT WILLIAM BOOTH

RAM

Hummingbird Creek

RAM FALLS

Falls

FALLS

ROCKY MOUNTAIN FOOTHILLS

Pinto Creek

Tp. 36

Tp. 35

Tp. 34

52° 00'

117° 00'

R.21

R.20

R.19

R.18

BANFF NATIONAL PARK

SIFFLEUR WILDERNESS

NORTH SASKATCHEWAN RIVER

Alexandra River

Glacier River

Glacier Lake

Southeast Lyell Glacier

Arctomys Valley of Lakes

Mistaya River

Howse River

Kaufmann Creek

Kaufmann Lake

Sarbach Creek

Wilson Glacier

Owen Creek

Rampart Creek

Norman Creek

Norman Lake

Pinto Lake

Waterfalls Creek

Lake of Falls

Purple Mountain

Resolute Mountain

Mount Coleman

Mount Amery

Mount Erasmus

Survey Peak

Arctomys Peak

Sullivan Peak

Mount Sullivan

Mount Sarbach

Mount Wilson

Mount Murchison

Murchison Icefield

Warden Lake

Murchison Creek

Totem Creek

Totem Lake

Bison Creek

Corona Ridge

Spreading Creek

Loudon Creek

Mount Loudon

Siffleur Mountain

Sentinal Mountain

Elliot Peak

Mount Ernest Ross

Kootenay Plains

Lower Siffleur Falls

Siffleur River

Thompson Creek

David Thompson Highway

93

11

1

3

4H

G

1

I

ELLIOT PEAK

MOUNT ERNEST ROSS

4H

3

KOOTENAY PLAINS

A

H

RIVER

Lower Siffleur Falls

Upper Siffleur Falls

Whiterabbit

North Onion

Onion Lake

MOUNT WILLIAM BOOTH

RAM

RANGE

Hummingbird Creek

Canary Creek

Creek

Lynx Creek

Ram River

FALLS

SASKATCHEWAN

Creek

London Creek

SIFFLEUR MOUNTAIN

MOUNT LOUDON

SIFFLEUR WILDERNESS

Siffleur River

Escarpment

CORONA RIDGE

Spreading

HEADWATERS

Ranger Creek

Indefatigable Creek

WAMPUM PEAK

BANFF NATIONAL PARK

R.18

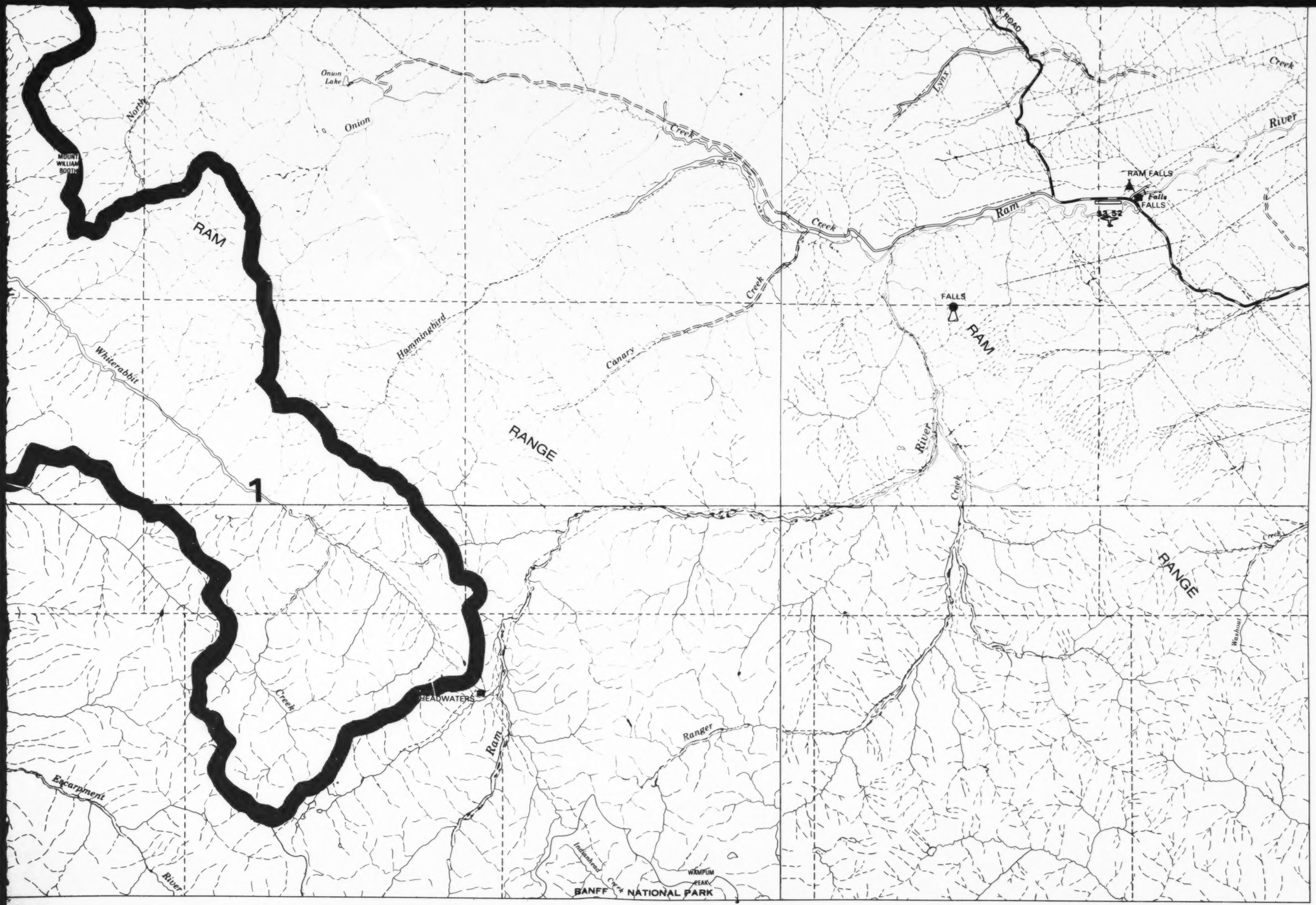
R.17

R.16

R.15

116° 00'

R.14 W.5


MOUNT WILLIAM BOOTH
North
Onion Lake
Onion
Creek
Lynx
ROAD
Creek
River
RAM FALLS
Falls
FALLS
Ram
Creek
FALLS
RAM
RANGE
Hummingbird
Creek
Canary
Creek
Whiterabbit
River
Creek
1
HEADWATERS
Ram
Ranger
Escarpment
River
Indianhead
Creek
WAMPUM
PEAK
BANFF NATIONAL PARK
RANGE
Washout
Tp. 36
Tp. 35
Tp. 34
52° 00'
116° 00'
R.17
R.16
R.15
R.14 W.5 Mer.
R.13